

FOCUS**ENHANCED STANDARDS FOR AUTO GASES**

Obliged to Abide by Either Greenhouse or Fuel Efficiency Standards

MONEY**DANGEROUS TEMPTATION**

Chinese Banks Becoming Monetary "Black Holes" via Yuan Deposits

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Are iPhone 6, Apple Watch Just Patchwork Samsung, LG Products?

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Korean Materials & Components :

Performing Well, But Advanced Materials Not All There Yet

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Korea Needs New ICT Strategy

Korea has failed over and over at globalizing its new technologies and leading the innovation of the international ICT market. Smartphones, 4G mobile telephony, MP3 players, social networks, and mobile payments are just a few examples. Nowadays, the U.S. and China, not Korea, are spearheading the growth of these markets.

Alibaba, the largest e-commerce company in China, recently listed itself on the New York Stock Exchange to become the fourth-largest IT company in the world and record 170 trillion won (US\$162 billion) in annual sales in its 14th year of business. Its online payment service Alipay is now comparable to PayPal.

China used to be regarded as a follower in the global ICT industry, but it is not so any longer. In contrast, Korea, which developed advanced information and telecommunications technologies least a decade earlier than its rivals, is experiencing a crisis. It has had to witness its innovative technologies commercialized first by the U.S. and China on repeat occasions.

For example, Samsung Electronics unveiled the world's first Windows OS-based smartphone, MITS, back in 2003. However, it lost the market initiative to Apple due to the lack of a globalization strategy. Wireless broadband, also known as WiBro, was put into commercial use in 2006, five years ahead of LTE, but disappeared after a failure of globalization, too. In the MP3 player industry, Korea has had to lose patent fees amounting to three trillion won (US\$2.8 billion). Cyworld, one of the world's first social networks, lost its market leadership to Facebook, while overlooking the emergence of the mobile era. Danal, which developed a mobile phone-based payment service ahead of any others in the early 2000s, is still struggling to increase its global market share.

Such failures may result in part from the too small local market for globalization, but the most fundamental cause of this situation is a lack of the government's future ICT strategy. In the past, the government failed to systematically support companies with innovative technologies, and actually hindered them with unusual regulations besides. For instance, mobile carriers limited the WiFi connection of the MITS because the government insisted upon the national platform standard of WIPI for feature phones, blowing any opportunity for the growth of the smartphone industry outside of Korea.

Fortunately, Korean companies have managed to dominate the global smartphone market. However, Chinese manufacturers are now poised to catch up with them with cheap handsets while Apple is preparing a counter-blow with the iPhone 6 and iPhone 6 Plus.

The ICT industry of Korea has to seek new growth drivers based on its past accomplishments. The creative economy drive of the Korean government cannot be achieved with assistance for venture firms and start-ups alone. More systematic and strategic backup has to be provided for the Korean IT flagship companies for them to fare better in the global arena.

Park Jung-hwan,
 Publisher & Editor-in-Chief



Enhanced Standards for Auto Gases

Obliged to Abide by Either the Greenhouse or Fuel Efficiency Standards

The emissions standards for automobile greenhouse gases is to be lowered to 70 percent of the current level by 2020, and the fuel efficiency standard is to be enhanced by more than 40 percent.

The Ministry of Environment and Ministry of Trade, Industry and Energy announced on Sept. 10 that they will pre-notify the “average greenhouse gas emissions and fuel efficiency standards for automobiles in the next term (2016~2020)” with the new regulations on Sept. 11.

According to the new criteria, the automobile greenhouse gas emission limit is to be enhanced to 97g/km by 2020 from the current standard of 140g/km. The fuel efficiency limit is also to be enhanced from 17km/l to 24.3km/l.

These figures are definitely above average, even compared to the automobile greenhouse gas emission standards of major advanced countries. Converted into the measurement methods of Korea (complex mode), the limits of Europe, Japan and the U.S. are 91g/km (by 2020), 100g/km (by 2020), and 113g/km (by 2020) respectively.

Automobile Industry & Company companies are obliged to abide by either the greenhouse or fuel efficiency standards, and will be fined if they fail to do so.

The related departments including the Ministry of Environment, Ministry

of Strategy and Finance, and Ministry of Trade, Industry and Energy agreed to enhance standards for average greenhouse emissions and fuel efficiency to the level of advanced countries by 2020 instead, and delay the subsidy system of low carbon vehicles at “the 30th economic ministerial meeting” held on Sept. 2.

More kinds of vehicles will be monitored for their greenhouse gas emissions and fuel efficiency performance. Currently, only sedans and vans less than 3.5t and a capacity of less than ten passengers are supervised. However, vans under the capacity of 15 passengers and freight cars lighter than 3.5t will be included.

For vans and freight cars with a capacity less than 15 passengers, greenhouse gas emissions is limited to 191g/km and fuel efficiency has to reach 14.1km/l at present. These standards will be reinforced to 166g/km of greenhouse gas emissions and 15.6km/l of fuel efficiency.

Considering the international trends in which rules over small automakers are intensified, the government plans to apply 8 percent relieved standards to automobile manufacturers that sell less than 4,500 vehicles as of 2013. Currently, these automakers see 19 percent relieved standards based on sales in 2009.

The government decided to lead fuel efficiency technological development in the industry by approving the maximum of 7g/km after listing the technologies capable of reducing greenhouse gas and enhancing fuel efficiency.

Furthermore, the government plans to make a low carbon vehicle friendly environment by counting vehicles with less than 50g/km of emissions as equivalent to 1.5 vehicle sales, and to count as 2 vehicle sales those with no emissions at all.

EV's Global Competitiveness to Be Lowered

As the low carbon incentive system is behind schedule, the automobile manufacturers in Korea are feeling relieved. However, some fear that Korea might be left out of the global environmentally-friendly automobile market. The low carbon vehicle incentive system, in which automobiles with low carbon emissions receive subsidies and those with a lot of carbon emissions get fines, was scheduled to become effective next year. However, the Korean government recently decided to delay the system until 2020 due to strong opposition from the industrial sector. Automakers altogether welcomed the decision, saying that they earned some more time to develop low carbon vehicles.

The problem is that global automobile Industry & Company companies are actively attempting to predominate the market by introducing electric vehicles and plug-in hybrid electric cars. Even though sales of these vehicles are low at the moment, the companies aim to establish the foundations for future growth considering the huge growth potential of the market.

In our neighboring countries of Japan and China, both government and industry are promoting environmentally-friendly vehicles. Alliances of automakers are building infrastructure for an electric vehicle charging system, and the government is encouraging the development of environmentally-friendly automobiles by providing exceptional benefits.

According to KOTRA's Nagoya Office in Japan, Japan recently established a "Nippon Charge Service" through the joint investment of Toyota, Honda, Nissan, and Mitsubishi. The purpose of this service is to operate and manage electric vehicle charging systems, and 70 percent of the operating costs are covered with government subsidies. Companies jointly bear the costs to install charging stands, and share the profits arising from the stations. In order to enhance the rate of distribution, quick charging stands have been installed in 500 Family Mart branches nationwide.

Japanese automakers have started to engage in such joint investment, as there have been complaints about existing charging stations. Consumers pointed out that uncertainties arise from different charging and billing systems at each station. There were two separate companies operating electric vehicle charging stations, CHAdeMO and Japan Charge Network, but the two systems were not compatible with each other due to different verification systems.

In the Japanese automobile industry so far, there have been strong voices saying that sound electric vehicle infrastructure needs to be established in accordance with the status of the world's biggest electric vehicle exporter. A total of 110,000 Nissan Leafs were sold last year in Japan, the most popular electric



Renault-Samsung's fully electric SM3ZE, which first came out in 2007.

vehicle. The Mitsubishi i-Miev is also considered to be one of the major electric vehicles in the global market. The Japanese automobile industry expects that the positive feedback loop of the expansion of electric vehicle charging infrastructure and advancement of electric vehicle-related technologies by automobile manufacturers will be successful.

In China as well, the electric vehicle market has been boosted, as U.S. electric vehicle company Tesla Motors started to build electric charging stations. Tesla officially entered the Chinese market last April by introducing the Model S, and recently announced the construction of 400 charging stations in 120 cities in China together with a Chinese telecommunication service operator China Unicom.

Tesla also plans to build supercharger stations in more than 20 places capable of charging 50 percent of a battery in 20 minutes. Elon Musk, CEO of Tesla Motors, expressed his strong determination in investing in China by saying, "China will be the biggest market of Tesla from now on."

The Chinese government played the most important role to create the current environment. China is considering significantly lowering the tariffs and value-added taxes for electric vehicles, which account for more than 30 percent of the price of automobiles. Although local automobile manufacturers are strongly opposed to this idea, the government is very determined. The City of Shanghai provided 3,000 free license plates for imported electric vehicles this year. Since unprecedented benefits for

electric vehicles continue to exist, global companies such as Volkswagen are competitively planning to launch electric vehicles. Tesla even announced the construction of a production factory for electric vehicles in China within the next four years. In addition, the Chinese government is actively promoting two goals of improving air quality and developing environmentally-friendly automobiles by enthusiastically pushing policies like environmentally-friendly buses and electric taxis.

As of last year, 95,000 electric vehicles were sold worldwide, which more than doubled compared to the previous year. Accordingly, Korea also set up the target to achieve 10 percent of market share in the electric vehicle market by 2015. However, whether or not this plan will be promoted as scheduled is now uncertain due to the delay of the low carbon vehicle incentive system. If this system becomes effective in time, the construction of electric vehicle charging stations would be able to start quickly within this year. But all these plans are becoming loose as well.

An industry professional pointed out, "Even if we successfully develop and introduce high quality environmentally-friendly vehicles after five years, global companies will have already dominated the environmentally-friendly automobile sectors in big markets such as China, South America, and India. If imported vehicles that meet the strict environmental standards of Europe penetrate the Korean market more and more, domestic environmentally-friendly vehicles will have no room to stand."

Debut on Global Diplomacy Stage

President Park Geun-hye Travels to North America for Keynote Speech at U.N., Summit with Canada



President Park Geun-hye departed on Sept. 20 for state visits to Canada and the United States. She is planning to stay in Canada until Sept. 22 and in the United States until Sept. 24 for the 69th United Nations General Assembly, the U.N. Climate Summit, and the U.N. Global Education First Initiative. This is the first time in 15 years that the Korean President has made a state visit to Canada.

The President will deliver a keynote speech at the general assembly on Sept. 24. She will speak about the Korean government's commitment to contribute to the three agendas of international peace and security, human rights promotion, and economic and social development. Also, she is going to mention her master plan for Korean reunification based on the Korean Peninsula Trust-building Process and the Northeast Asia Peace and Cooperation Initiative in order to ask for the understanding and support of the international community.

The specifics of her speech are drawing much attention, with North Korean human rights issues emerging as a key agenda of the general assembly. The growing number of atrocities being committed in the Middle East by ISIS has caused an increasing number of Western states to take a firm stance on human rights issues. Under the circumstances, human rights in North Korea is likely to be discussed as a major topic in the general assembly.

Her participation in the conference is highly meaningful as her debut in the U.N. since the inauguration in February last year. At the same time, it is expected to result in a higher standing of Korea as a member of the UN Security Council, Economic and Social Council, and Human Rights Council that leads the discussion of global issues on climate change, fight against terrorism, and education and development.

The president is expected to have bilateral talks with some countries, too. Japanese Prime Minister Shinzo Abe, who suggested a summit meeting via former Prime Minister Yoshiro Mori staying in Korea for the Asian Games, is scheduled to attend the general assembly as well, and thus summit talks could take place between Korea and Japan. Both the President and the Prime Minister are slated to join the U.N. Climate Summit on Sept. 23. Still, the possibility is low, because Japan is maintaining its conservative stance while showing no meaningful change regarding the history issue.

In the meantime, North Korean Foreign Minister Lee Sung-yong will attend the general assembly for the first time in 15 years as a minister from Pyongyang. He is scheduled to make a keynote address on Sept. 27, but will arrive in New York as early as Sept. 20. He could meet with South Korean foreign affairs minister Yoon Byung-se, as both are staying together for six days. "I hope that North Korea will answer our request

for a high-level meeting,” President Park Geun-hye had said on Sept. 16 at her interview with Reuters, adding, “I look forward to an opportunity for dialogue between foreign ministers of both Koreas.”

At the U.N. Global Education First Initiative, President Park will give a speech as a representative of the group of champion countries. There, she will speak about the Korean government’s education strategy and international contributions, while expressing Korea’s commitment to the education agenda for the future as the head of the country hosting the World Education Forum 2015.

Then, the President will participate in the U.N. Security Council conference on the topic of foreign terrorist combatants, which is hosted by U.S. President Barack Obama. As the first Korean President in the conference, she will remark on the necessity of international cooperation with and Korea’s contribution to the fight against foreign terrorist combatants in the Middle East.

On Sept. 23, she will attend the U.N. Climate Summit for political preparation for the new climate regime that will be effective from 2020. The Korean government’s endeavor for the creation of new economic growth drivers based on climate change response and its role as a bridge between advanced and developing economies in tackling climate change are to be explained there.

She will deliver four speeches and presentations during her visit to the U.N. The keynote at the U.N. General Assembly will be made in Korean, according to diplomatic customs. However, some of the others will be delivered in English.

Also scheduled are discussion sessions with major New York-based research institutions such as the Korea Society, the Asia Society, and the Council on Foreign Relations. Opinions as to the political situation in the Korean Peninsula and Northeast Asia are to be exchanged, and Korea’s diplomatic and security policy will be introduced.

State Visit to Canada

Before her visit to the U.S., President Park will visit Canada from Sept. 20 to 22 at the invitation of Canadian Prime Minister Stephen Harper, who visited Korea in March this year. She will meet with Canadian Governor General David Johnston and have summit talks with the Prime Minister so that both countries can achieve more constructive relations based on a bilateral FTA. After the summit for the discussion of energy resources utilization, scientific and technological development, cultural exchange and the like, she will visit Koreans residing in Canada and attend the Korea-Canada Business Symposium hosted by Korean and Canadian enterprises.

The list of the 48 economic delegation members to accompany her in Canada was finalized on Sept. 18. The members of the mission consist of entrepreneurs from various industrial sectors including automobiles, auto parts, machinery, energy development, alternative energy, cosmetics, and cultural content. The 13 public organizations and associations included

in the delegation are expected to launch projects for two-way cooperation and assistance for smaller firms, too.

“President Park Geun-hye’s state visit to Canada at this time, which commemorates the 51st anniversary of diplomatic relations between the two countries, will be a cornerstone of the bilateral relations for the next half century, in which both nations will be in pursuit of mutual prosperity,” the Presidential Office explained.

The members of the Economic Mission to Canada are as follows: Federation of Korean Industries Chairman Huh Chang-soo, Korea International Trade Association Chairman Han Duk-soo, Korea Chamber of Commerce & Industry Chairman Park Yong-man, Korea Federation of Small and Medium Business Chairman Kim Ki-moon, Association of High Potential Enterprises of Korea Chairman Kang Ho-gap, Samsung Electronics Vice Chairman Kang Ho-mun, Hyundai Motor Company President Jung Jin-haeng, Hanwha Corporation President Park Jae-hong, SK E&C President Choi Kwang-chul, LG International Corporation Representative Director Song Chi-ho, Korean Air President Ji Chang-hoon, Doosan Representative Director Park Sung-chul, GS Global President Jung Taek-geun, CJ Cheil Jedang Representative Director Kim Chul-ha, Tong Yang Moolsan Chairman Kim Hee-yong, Kyobo Life Insurance Chairman Shin Chang-jae, Daewoo Shipbuilding & Marine Engineering President Ko Jae-ho, Amore Pacific President Shim Sang-bae, SM Group/TK Chemical Chairman Wu Oh-hyun, Fashion Group Hyungji Chairman Choi Byung-oh, Komac Heavy Industries Representative Director Jo Bung-koo, Shinil Frame Representative Director Roh Sang-chul, World Innotec Representative Director Lee Han-wook, Daeho Industry Representative Director Ku Ja-ok, Autogen Chairman Lee Yeon-bae, Onegiup Representative Director Won Bu-sung, Mson Representative Director Lee Min-jae, Airvita Representative Director Lee Kil-soon, Daemo Engineering Representative Director Lee Won-hae, Bow Industrial Corporation Chairman Kim Myung-ja, Golf Zone Chairman Kim Young-chan, Samjin Industrial Representative Director Hwang Sun-bok, Keyyang Precision Representative Director Jung Byung-ki, Artcom Representative Director Choi Jin-woo, Seum Engineering Representative Director Kim Young-taek, Kumkang Corporation CTO Bang Man-hyuk, Eunsan Construction Chairman Kim Kyung-ok, HS International Representative Director Kim Byung-hoon, CRTech Representative Director Roh Sun-hee, Redrover Representative Director Ha Hoe-jin, Korea Electric Power Corporation President Jo Hwan-ik, Korea Trade Insurance Corporation President Kim Young-hak, Korea Trade-Investment Promotion Agency President Oh Young-ho, Korea Institute for Industrial Economics & Trade President Kim Do-hoon, Korea Institute of Geoscience & Mineral Resources President Kim Kyu-han, Korea Evaluation Institute of Industrial Technology President Lee Ki-sup, Korea Institute of Energy Technology Evaluation & Planning President Ahn Nam-sung, and Korea Association of Small & Medium Industry Chairman Park Sang-hee. BK

Mobile Prevalence in N. Korea

1 in 10 North Koreans Might Have Mobile Phones

As the number of mobile phone users has reached two million in North Korea, mobile phones have become a basic necessity for living. One of ten North Koreans now has a mobile phone.

According to a research report on mobile phone usage trends in North Korea conducted jointly by Johns Hopkins School of Advanced International Studies (SAIS) and Kim Yeon-ho, a journalist at the Voice of America (VOA), mobile phone services are provided in Pyongyang and 100 other cities in North Korea. These services cover 14 percent of the geography of North Korea and 94 percent of the total population.

Mobile telecommunication services in North Korea started in November 2002 when Loxley Pacific of Thailand provided 2G GSM services together with Korea Post and Telecommunications Corporation (KPTC) under the Ministry of Posts and Telecommunications of North Korea. Mobile telecommunication services were then suspended when rumors of terror attacks were being spread after the big explosion at Ryoungchon Train Station in April 2004. Services were restarted in December 2008. Koryolink, a joint venture between Egyptian company Global Telecom Holding with 75 percent equity, formerly Orascom Telecom Holding, and KPTC, under the Ministry of Posts and Telecommunications of North Korea, started 3G services at that time, which have lasted until today.

Orascom announced that the number of its subscribers is two million. Considering that one million soldiers are not allowed to use mobile phones due to security reasons, and three million children under the age of ten are too young to use mobile phones, two million subscribers among 24 million North Koreans means that one out of ten North Koreans uses a mobile phone. In Pyongyang, where assets are concentrated, one out of five residents is assumed to use a mobile phone.

However, as the average wage of factory workers in North Korea is 3,000 won, it is hard for them to afford the prices of mobile phone devices and the resulting phone bill. So some point out that subscriber numbers are exaggerated. Furthermore, based on per capita GDP in North Korea, this statistic is considered to be unrealistic.

Others claim that Orascom is not likely to exaggerate subscriber information intentionally, as their performance reports are very important in investor relations and tax issues.

The fact that mobile phones are getting very popular in North Korea is clear, though. According to North Korea Tech, a U.S.-based website focusing on recent science and technol-



ogy news of North Korea, some North Koreans obtained SIM cards for mobile phones while foreigners were visiting North Korea, so that North Koreans could temporarily use international phone calls and the external Internet.

Accordingly, the propagation of mobile phones in North Korea could impose new influences on the North Korean regime.

But since the popularization of mobile phones in North Korea is under strict control, and the regime routinely practices wiretapping, this trend is not likely to lead to a "North Korean Spring," according to the report.

In the meantime, North Korea is building hotels and training hoteliers to attract foreign tourists. According to its international propaganda magazine Tongil Sinbo Weekly, such hotels are to be built across the country, even in counties far from Pyongyang.

Since the inauguration of Kim Jong-un, the North has built new hotels and remodeled existing ones in an effort to develop its tourism infrastructure. The Kalma Hotel and Saenalo Hotel opened in Wonsan, Gangwon Province in July last year. Another large hotel was set up in the Mashiknyeong Ski Resort in December, too.

The country is trying to make the most of its tourism resources located in major tourist attractions and various local areas. Some experts point out that North Korea is planning to give foreign tourists greater access to previously prohibited areas. BK



Effects of Unification

Unification of Korea to Create US\$200 Billion of Economic Effects for Surrounding Nations

Minister of Unification Ryu Gil-jae delivered a congratulatory speech at the international seminar for “analyzing benefits and costs of Korean unification for four surrounding countries” hosted by the Korea Institute for International Economic Policy (KIEP) in the Conrad Hotel located in Yeouido, Seoul on Sept. 17.

Professionals from the U.S., China, Japan, and Russia all claimed that unification of Korea would be a jackpot for all the surrounding countries. Over US\$200 billion in economic benefits were calculated from analyses on various simulations.

Marcus Noland, executive vice president at the Peterson Institute for International Economics, evaluated, “If Korea is unified upon the rapid breakdown of North Korea, and North Korea is absorbed into South Korea, economic sanctions on North Korea will be lifted immediately without any complicated legal and political problems. Then trading with the U.S. will increase at least US\$960 million, and growth will reach US\$20 billion after ten years.”

Jin Jingyi, professor at Peking University, analyzed, “If Korea is unified peacefully, the GDP of three Northeast provinces in China – Liaoning, Jilin and Heilongjiang – which have been underdeveloped due to insufficient trading and foreign investment, will enhance by more than US\$162.6 bil-

lion.”

Fukao Kyoji, professor at Hitotsubashi University of Japan, said, “If Korea is unified peacefully, the GDP of Japan will increase by US\$24.6 billion (0.5 percent of GDP of Japan in 2015) and 210,000 new jobs will be created due to an increase in exports.” Professor Fukao assessed, “Demand expansion from a unified Korea will increase the GDP and employment of trading counter-parties such as the U.S. and Japan, which are currently suffering from low demand.” Alexander Zhebin, director of the Centre for Korean Studies at the Russian Academy of Sciences in Moscow, diagnosed, “Unification through reconciliation and cooperation is the most likely scenario. In this case, Russia will be able to earn US\$5 billion through connecting an oil pipeline.” He also expected that trading with Korea will increase and investment in the Far East will expand.

However, not everyone projected a positive outcome at this event. Sung Han-kyung, a professor of the School of Economics at the University of Seoul, pointed out, “Imports might surge right after unification, and this could lead to high volatility in foreign exchange rates. Foreign loans might increase as well.” Regarding this, Professor Fukao added, “Right after unification, the current deficit of Korea would reach 10 percent of GDP due to rising imports.” **BR**

National Competitiveness

World Economic Forum Ranks Korea 26th, Lowest in 10 Years

Korea was ranked at 26th place at the Global Competitiveness Report 2014 by the World Economic Forum (WEF), one level lower from the previous year.

Especially, the rank of the soundness of banks fell almost to the bottom, and ranking of corporate ethics also dropped to the lower end. Personal information leaks in the financial sector, missile launches by North Korea, and the Sewol accident during the first half of this year imposed negative influences onto the overall competitiveness of Korea.

This is the lowest score in ten years since Korea was ranked in 29th place in 2004. The national competitiveness of Korea reached its peak of 11th place in 2007, and rebounded to 19th from 24th in 2012. Except for those two years, Korea has continued to show a downward trend every year.

The International Institute for Management Development (IMD), one of the two major national competitiveness assessment companies, also scored Korea as the 26th place this year.

Looking at the national competitiveness ranking of the WEF by sector, the basic requirements stayed at 20th, the same place compared to last year. Efficiency enhancers dropped from 23rd to 25th, and innovation and sophistication factors from 20th to 22nd.

Among basic requirements, only the macroeconomic environment was ranked higher, from 9th to 7th. All other pillars, institutions (74 to 82), infrastructure (11 to 14) and health and primary education (18 to 27) fell down.

Among efficiency enhancers, financial market development rose from 81st to 80th and market size from 12th to 11th. Higher education and training (19 to 23), labor market efficiency (78 to 86), and technological readiness (22 to 25) all fell. Goods market efficiency

stayed at the same place as last year, 33rd.

Within innovation and sophistication factors, business sophistication fell down from 24th to 27th. Innovation stayed at the same place to the last year, 17th.

Through the analysis of 12 pillars under sub-indexes, four factors stayed within top 20th, a sound macroeconomic environment, market size, good infrastructure and innovation, were pointed out as strengths.

However, three pillars stayed out of the 80th position, which are particular weaknesses: low quality public and private institutions, an inflexible and inefficient labor market, and an unsophisticated financial market.

The Ministry of Strategy and Finance announced that statistics indexes, which accounted for 30 percent of



the evaluation, improved overall, but survey indexes, which account for the remaining 70 percent, were degraded.

The Ministry of Strategy and Finance also pointed out that personal information leakage in the financial sector, North Korean missile launches, and the Sewol crisis that happened from February to April when the WEF survey was in progress, might have exerted negative effects on sentiments.

In fact, rankings in soundness of banks (113 to 122), business costs of terrorism (106 to 115), intellectual property protection (55 to 64), business costs of crime and violence (60 to 76), organized crime (73 to 93), and corporate ethics (79 to 95) dropped a lot. BK

Working Hours

Koreans Work Second-longest Hours in OECD



It has been found that Koreans work 393 hours more per year than their counterparts in the OECD member countries on average. The length of working hours is approximately 1.6 times that of Dutch workers.

The OECD announced statistics for 2013 on August 25. According to the data, the average annual working hours amounted to 2,163 for Korean workers, while Mexico topped the list with 2,237 hours.

Mexico and Korea were followed by Greece (2,037 hours), Chile (2,105), the United States (1,788), Japan (1,735),

and Britain (1,669), and the OECD average was 1,770 hours. Meanwhile, Dutch workers recorded the shortest length (1,380) with those in Germany (1,388), Norway (1,408), Denmark (1,411), and France (1,489).

Korea ranked first back in 2000 with 2,512 hours, when Mexico recorded 2,311. Korea was on top of the list until 2007, but then Mexico took its place in 2008 (2,246 hours vs. 2,260 hours). BK

World University Rankings

Korean Universities Jump in 2014 World University Rankings



“No other country will be happier than Korea about the world university rankings for the last ten years,” said a representative of Quacquarelli Symonds (QS), a British global university evaluation institution, when announcing the results for 2014 on Sept. 15.

Since QS first published the world university rankings in 2004, Korean universities have grown remarkably. Together with Korean universities, “other Asian universities have improved” in Singapore, China and Hong Kong. However, QS pointed out that Korean universities have to enhance their levels of globalization in order to become the world’s best.

In 2008, when global financial crisis started, the University of Tokyo was ranked 19th and Seoul National University was 50th. But Seoul National University closed this large gap in just six years. Martin Ince, chair of the Advisory Board for the Rankings, said, “Ranking change of Seoul National University and the University of Tokyo shows how much the status of Korean universities went up in the Southeast Asian region.”

Seoul National University was behind the University of Tokyo in “academic peer review,” “recruiter review,” “faculty student ratio,” and “citations

per faculty” out of a total of six assessment indexes. However, Seoul National University beat the University of Tokyo in “percentage of international students” and “percentage of international staff.” The world university rankings calculate scores of each university with a weighted scale: 40 percent is academic peer review, 20 percent is citations per faculty, 20 percent is faculty student ratio, 10 percent is recruiter review, 5 percent is the percentage of international students, and 5 percent is the percentage of international staff.

Both KAIST (51st) and POSTECH (86th), universities specialized in science and technology, jumped up by nine and 21 rankings respectively compared to last year. The two universities are constantly showing good performances in citations per faculty.

Yonsei University was ranked 106th, eight steps higher than last year, and Korea University was ranked 116th, 29 steps higher than last year. Sungkyunkwan University became the 140th best university this year from 162nd last year. Sungkyunkwan University was selected as one of the ten universities which rankings improved the most in the QS world university rankings since 2009.

Not only Korean but also other Asian universities have jumped very high in the last ten years. In 2005, only eight Asian universities were part of the top 50 universities in the world, but this year there are 11. In 2005, only 11 Asian universities were in top 100 universities worldwide, but this year there are 25. According to the report, one of the reasons why Asian universities, including Korean ones, are doing well internationally is “the government’s constant investment in college education.”

After analyzing the world university rankings this year, it was pointed out that all Asian including Korean universities have weaknesses in “globalization.”

Hanyang University, which has the highest percentage of international students in Korea, received 76.5 points and ranked 150th globally. Following Seoul National University, KAIST and POSTECH were 219th, 509th, and 609th respectively. Even though POSTECH has the highest percentage of international staff in Korea, it was only in 265th place worldwide. Both Yonsei University and Korea University are below the top 400.

The world’s best university was Massachusetts Institute of Technology (MIT) in the U.S., followed by the University of Cambridge and Imperial College London of the U.K. Harvard University of the U.S. was the second best university last year, but dropped to fourth this year. Among Asian universities, the National University of Singapore (NUS) was ranked highest at 22nd place. The University of Hong Kong (28th), the University of Tokyo (31st and tied with Seoul National University), Kyoto University (36th) and Nanyang Technological University (39th) followed. **BK**

Gumi City

Aiming to Become Global Standard as Origin of Saemaeul Movement



Gumi City, which was previously known mainly as an industrial city, has set the foundation to become a place where industry, culture, welfare, and environment are blended in harmony. In addition, as the original city of the Saemaeul Movement, Gumi is working to become a global hub to guide and support the national development of underdeveloped economies to create future prosperity. Based on such achievements, Mayor Nam Yoo-chin, now in his third term after winning the regional government elections in June this year, wants to see his city become the representative of the nation's convergence and creative economy. BusinessKorea sat down with him to hear about his plans and dreams to develop the city into a "Premium Global Standard City." Excerpts from an interview with him follow.

We would like to give our belated congratulations on your third term as the mayor of Gumi City.

First of all, I would like to thank all of the Gumi citizens who supported me at the June 4 local election. I will return the favor by keeping up with the currently ongoing projects for successful

completion and turning the city into a better and more thriving place, based on the past accomplishments, during the four-year term ahead.

Please evaluate your own accomplishments during the past eight years.

During the last eight years, Gumi City has achieved a lot of things under the goal of "Premium Global Standard City" thanks to full support from the citizens. The city, which was previously known mainly as an industrial city, has set the foundation to become a coveted place where culture, welfare, and environment blend in harmony. I would like to express my heartfelt gratitude again for the endeavors of the citizens, companies, and workers in Gumi.

The Gumi Industrial Complex is slated to become the largest inland industrial zone in Korea, with an area of 42.3 km², through the expansion of the Fifth and Fourth Complexes. In addition, the old First Complex was designated in March this year as an Innovation Cluster, and regeneration projects are scheduled there for the revitalization of the entire complex. No less than 11.6

trillion won [US\$11.1 billion] of investment was attracted from companies both at home and abroad. The number of companies in the city has exceeded 3,000, and that of workers broke the 110,000 mark.

During the course, we went through a hydrofluoric acid leak in September 2012, which was an unprecedented industrial accident. However, Gumi turned the crisis into an opportunity by housing Korea's first National Chemical Disaster Prevention Center for safer and healthier urban infrastructure. The 10 Million Tree Planting Campaign made the city even greener along with Korea's finest eco-friendly waste recycling facilities. Also, it adopted wirelessly charged electric buses for the first time in the world while opening the Zero Carbon Education Center for an environmental-friendly future.

Gumi also developed unique cultural and tourism content based on the legacy of the late former President Park Jeong-hee and his Saemaeul Campaign. The Park Jeong-hee National Restoration Museum will be opened soon, and the area surrounding his birthplace will be turned into a park. Also, the Saemaeul



Nam Yoo-chin, Mayor of Gumi City.

Movement Theme Park will appeal to tourists from all around the world.

When it comes to education and welfare, education aid has increased by 41-fold to 28.6 billion won [US\$27.4 million] in eight years, and the ratio of free meal beneficiaries went up to 43.4 percent at elementary and middle schools. Various types of essential vaccinations for infants and toddlers are now completely free of charge, which is just a part of its diverse welfare policy that has allowed Gumi City to be selected as an Excellent Welfare Policy Provider by the Ministry of Health & Welfare for eight years in a row.

These accomplishments resulted in us winning second place in the recent Korean Local Government Competitive-ness Evaluation, the grand prize at the 10th Regional Industry Policy Awards, and as many as 298 more prizes. I personally was granted nine prizes, including the Best CEO title at the Korean Local Governance Awards of last year and the Creative Economy CEO Award of this year, too. All of these reflect the reputation of Gumi as one of the most competitive cities in Korea.

What is your policy direction for the new term?

The key words of my third term are safety, happiness, and communication. During the past few years, Gumi has developed itself externally or quantitatively, but I believe that the people's happiness matters as much. This is why the local government put forth the slogan of "Safe Gumi and Happy Citizens." It will communicate more closely with the people in its quest to become a Global Standard Premium City, and its Happiness Plan 119 is a specific evidence of its promise.

In the economy, the city will move ahead with the 8-8-8 Project, the purpose of which is to create 80,000 jobs, bring in investment of 8 trillion won [US\$7.6 billion] and attract national projects worth 8 trillion won as well. The extension of the Fifth and Fourth Complexes mentioned earlier will be implemented ahead of schedule to that the industrial complexes can become the foothold of future growth.

On the culture side, the construction of the Saemaeul Movement Theme Park and the park neighboring the former President's birthplace will be com-

pleted earlier than scheduled. A municipal museum and an exhibition center in honor of the former President will also be built so that people from all across the world can appreciate the content. Various leisure sports facilities for water sports experiences, auto camping and the like are set up in the wide riverside areas obtained from the Four River Restoration Project, excluding the preservation areas, in the Nakdong Riverside Project. It will add to the appeal of Gumi as an attractive tourist destination.

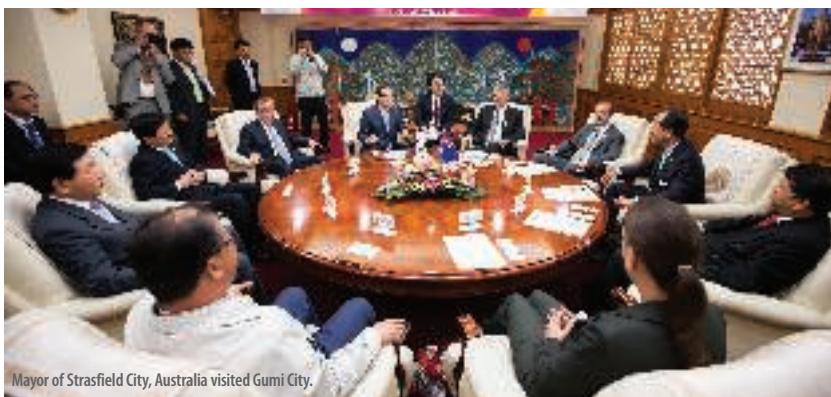
As far as welfare is concerned, Gumi City is aiming to become Korea's most female-friendly city and further refine its welfare networks for people of all genders and ages by means of more call taxis for the physically disabled, low-floor buses, the municipal crematorium, etc. The 100 Billion Won Scholarship Project will continue, and free school meals will be made available for all of the elementary and middle schools in the city.

How is foreign investment going in Gumi and what is Gumi's appeal to foreign investors?

The city is home to the Gumi Industrial Complex, which has led



Mayor Nam Yoo-chin delivers a speech at the local government meeting among Korea, China and Japan.



Mayor of Strasfield City, Australia visited Gumi City.

the export activities of Korea for four decades. Approximately 110,000 people with accumulated expertise are working there, and industrial water is supplied at an inexpensive price thanks to the Nakdong River flowing through the region. Samsung Electronics and LG Display form the center of the regional economy and their 3,000 partner firms are doing brisk business by making use of the advanced industrial infrastructure.

Gumi launched investment attraction activities targeting foreign companies in 2002 for the first time among primary local governments. The attraction of foreign company investment has led to industrial diversification and introduction of the advanced technology of global players for higher technological competitiveness. Toray Advanced Materials, Asahi Glass Fine Techno Korea and many other component and material manufacturers have placed themselves in the Foreign Investment District established in 2004. This has resulted in import replacement so that the trade deficit vis-à-vis Japan decreased from US\$2.3 billion to US\$500 million between 2006 and last year.

As mentioned earlier, Gumi City has created 30,000 jobs by attracting an investment of 11.66 trillion won [US\$11.15 billion] from 579 companies since July 2006. Foreign investment accounted for 2.4 trillion won [US\$2.3 billion] of it, from 16 companies and 1,800 new jobs. At present, ZF, Elring Klinger, Lusem, and Korea Optical High-tech are transferring their advanced production technology to Korea. A group of city officials are planning to visit the main office and research institute of Toray in Japan from Sept. 28 in order to bring in more Japanese component and materials companies. From Oct. 13, they will attend the Volkswagen Auto Parts Business Meeting to attract more German companies.

These days, export of the Saemaeul Campaign to developing countries is gaining speed. How is Gumi engaged in it as the origin of the movement?

The Saemaeul Movement started on April 22, 1970, led by the late former President Park Jeong-hee. Since then, Gumi has never been lax in the move-

ment. I would like to stress that Gumi City has made great efforts to succeed with the spirit of the movement and recreate it to suit today's environments.

In this context, we successfully hosted the Korea Saemaeul Expo in 2009, looking back on the history of the movement and reconfirming that Gumi is the origin of the nationwide campaign. More than 300,000 people joined the expo to appreciate the promising future of the movement and share their thoughts on its value.

The Saemaeul Cleaning Campaign has been underway on the first day of every month since July 2006 with the Saemaeul Flea Market on each second Saturday. The 36 Saemaeul Libraries found across the city have increased the people's awareness of reading, and Global Saemaeul Campaigns have been launched in 10 countries including the Philippines, China, the Congo, Sri Lanka, Vietnam, Ethiopia, Nepal, and Mongolia, for the common prosperity of the global village. The Saemaeul Origin City Declaration Ceremony took place on Sept. 2012 to show the world that Gumi is the historic symbol of the movement and it is the driving force for the premium city of Gumi and the green future of Korea.

The Saemaeul Movement Theme Park broke ground in March 2012 in this vein, too. In total, 88.8 billion won is going to be invested into a 250,949 m² wide area near the birthplace of the former President in Sangmosagok-dong so that museums, training centers, plazas, and reproduction villages can be set up with a total area of 28,414 m² by March 2016. The theme park will be a place where young Koreans unfamiliar with the campaign can learn about the source of the Miracle of the Han River that accelerated Korea's modernization and a global hub where less-developed nations can get a hint of national development models for future prosperity.

Gumi is one of the largest industrial cities in Korea. How is it dealing with the worldwide issue of carbon emissions reduction?

I believe that Gumi, having grown



as an industrial city for 40 years, bears a huge responsibility for climate change. I am also confident that Gumi has to become a zero carbon city in the long term if the products it produces are not to be discounted but seen as premium.

The Carbon Zero City Declaration was made in this context on April 20, 2010. According to the declaration, the establishment of the zero-carbon road map was completed in December 2011 so that greenhouse gas emissions can be reduced by 35 percent more than the BAU by the end of 2020. The city government is currently proceeding with 80 specific day-to-day activities like Carbon Point and Green Apartment Search with local citizens, and the Zero Carbon Education Center was opened on June 19 of this year. The center, covering the Daegu and North Gyeongsang Province region, will promote the awareness of climate change and action plans for carbon emissions reduction.

E-buses have been put into operation after testing in August last year. The buses are characterized by being charged, even without any plugs, while stopping on the road. The world's first wireless charging technology was developed by the Korea Advanced Institute of Science & Technology (KAIST) and selected as one of the best 50 inventions of 2010 by TIME magazine.

A number of large-scale international events have been held by Gumi recently. What are examples and their significance?

The Korean Women's International

Network 2014 was held between Aug. 26 and 29. There, Korean women leaders around the world gathered together to discuss major female issues, bring up their suggestions and talk over the role of women in a future society. Approximately 500 female leaders participated in the conference from 34 countries including the United States, Australia, Germany, Russia, and France.

The Local Government Exchange Conference of the three Northeast Asian countries took place for four days from Sept. 1 and local government personnel of Korea, Japan, and China, which constitute one important pillar of the global economy, agreed to expand their exchange and cooperation for new growth opportunities in the era of the creative economy. This year, the number of participants amounted to 520, despite the diplomatic tensions among the three nations.

What is remarkable is that both of the events used to be hosted by cities larger than Gumi in the past. This implies how Gumi's standing and reputation as an international city have been raised. The 2014 Korean Architect Con-

gress is scheduled for October and the 11th Korea Youth Expo is held next year with 10,000 and 170,000 people expected to participate in the respective events. The city government will make thorough preparations for the occasions for great economic effects and further increase the international standing of Gumi as a cultural and tourist hot spot.

What picture are you drawing for the expiration of your term?

The year of 2014 is critical for Gumi in that it celebrates its 40th anniversary as a city and the 50th of the completion of the Gumi Industrial Complex. If the above-mentioned projects go off without a hitch, the city will attain US\$50 billion in exports and 500,000 population and be home to the fifth National Industrial Cluster in four years.

I am eager to keep refining the city with abundant cultural resources and healthy environments, two of the most important elements of future-oriented economic centers. I promise I will put forth every effort so that the city can keep flourishing in the future. 



Samcheok City

Towards Establishing an Ecological City of Clean Energy

With Kim Yang-ho newly elected as the mayor of Samcheok City in the recent local government election, the city has changed its development strategy from “Hybrid Energy City” to “Citizen-centered City for People’s Happiness.” Until recently, the nuclear power station issue has split the opinions of citizens. The newly-elected mayor sees it has his responsibility to put an end to the controversy. BusinessKorea had an exclusive interview with him to hear about his will and plan for solving the main pending issue of the city and achieving its future prosperity. The following are excerpts from the interview.

First of all, congratulations on your election as the new mayor of Samcheok City.

I would like to appreciate all of the Samcheok citizens’ support for me. I will do my utmost to foster the value of Samcheok City while developing it as a citizen-centered city. These days, I am putting forward every effort to find the best way to handle the major pending issue of the cancellation of the nuclear power plant construction.

The Samcheok City government’s slogan has changed from Hybrid Energy City to Citizen-centered City for People’s Happiness. Please explain about the philosophy of your municipal governance.

The goal of the governance is establish an ecological city of clean energy where the people and nature coexist and accelerate the development of its tourism infrastructure. Until recently, the nuclear power station issue has split the opinions of the citizens to arouse controversy and hinder the development of the city. I promise I will put an end to the dispute so that the city

can achieve future prosperity from this moment onwards.

Your election pledges include the cancellation of the construction of the nuclear power station and promotion of the growth of alternative industries. What are the details?

A large number of Samcheok citizens rooted for the nullification of the construction plan during the June 4 local election. I will make a strong request to the central government as the representative of the city. The government is planning to create jobs and develop local industries by means of nuclear power generation. However, I will attain the goals by speeding up the growth of alternative industries in order to turn Samcheok into a clean city and the center of the East Coast region.

In this context, a photovoltaic power generation theme park will be built with private investment, at the very site earmarked for the nuclear power plant, for future energy production and distribution. We plan to hold a Solar Festival at the theme park each year. Also, cash crops like herbs and shitake mushrooms will be cultivated right in the 200 MW-capacity photovoltaic power generation complex so as to maximize the utilization of the facilities. Ecological power plants using solar power, energy self-sufficient villages, and 1,000 solar power houses are scheduled to be set up, too. One hundred billion won is slated to be invested in an underground laboratory for double beta decay and dark matter research in Mt. Doota, Miro-myeon, while a cosmic ray research center will be attracted along with it. All of these will contribute to the regional develop-



Kim Yang-ho, Mayor of Samcheok City.



ment and national energy supply.

It is expected that the procurement of the financial resources for alternative industries will be quite tough. What plans do you have in mind?

We have already completed the analysis of our financial conditions and we will reexamine the past projects to set priorities for gradual, phased and thorough progress. The Samcheok Citizen Fund is to be raised in this vein and a 9 MW-capacity plasma coal gasification plant will be built in the mining area of Dogye-eup, along with factories for Industry & Company related equipment. The social enterprise of Dogye Plasma Power Plant will use 54,000 tons of low-calorie anthracite a year, hire 350 local citizens, and supply free electricity to the local residents. The ratio of private investment and foreign funds will be raised aggressively, although the past projects were based mainly on the local government budget.

What is the core competency for sustainable growth of Samcheok City, and how are you developing it?

The key lies in the abundant cultural resources and clean environments unique to the city. The local economy revolved around coal and cement production until the 1970s, but the focus has shifted to the culture and tourism industries since the 1980s, and this will continue in the future as well.

Sir Lee Seung-hyu wrote the nation's masterpieces of Samgukyusa and Jewangunki at Cheoneunsa Temple located in Miro-myeon. General Lee Sa-bu regained the Ulleungdo territory

from the advance base of Samcheok. The city is home to the royal tombs of King Gongyang of the Goryeo Dynasty, and an ancestor of the founder of the Joseon Dynasty Lee Sung-kye. The high historic value of the city is a cherished treasure of the entire nation.

Samcheok has a number of beautiful tourist spots, ranging from mountains and valleys to the sea and caves, too. The Samcheok Seaside Rail Bike was selected as the Star of Korean Tourism in July by the Korea Tourism Organization. The Daei-ri area located in Shin-ki-myeon houses the Hwanseon Cave and Daekeum Cave, two of the largest caves in Korea with a half-billion-year history and the nickname of Dream Palace. Also, the Jangho Beach is called the Naples of Korea. All of these attractive tourist destinations will mesmerize you all year round.

Lastly, what would you like to say about the future of Samcheok City?

Samcheok is in the middle of drastic shift now. The Referendum Commit-



tee of Samcheok citizens will gather the people's opinions as to the construction of the nuclear power station for harmony and concord, because the ongoing dispute cannot last forever. I hope the central government will revise and improve related bills while coming up with measures for the development and promotion of new and renewable energy sources.

I believe now is the time for Korea to review the sustainability of nuclear power generation in view of the degree of damage from nuclear accidents, change in nuclear power development and energy policy of other countries, and environmental preservation for the next generation. More and more countries around the world are now going for alternative energy, and Korea must not fall behind. **BK**



Korea Power Exchange

KPX Starts to Build ESS Facilities for Frequency Regulation



KPX held a groundbreaking ceremony to set up ESS facilities for frequency regulation.

With guests from local autonomous entities and regional areas present, Korea Power Exchange (KPX) held a groundbreaking ceremony to set up energy storage system (ESS) facilities for frequency regulation at Honam Thermal Powerplant in Yeosu.

At the ceremony, 50 guests from the Ministry of Trade, Industry, and Energy, KPX, the Korea Institute of Energy Technology Evaluation and Planning, Korea East-West Power, Korea Electrotechnology Research Institute (KERI), and Bitek Information & Communication came to celebrate the event.

KPX (Chairman & CEO Nam Ho-ki), the host institute, has been carrying out a national research project for the Development of the ESS Operation System for Electric Frequency Regulation and Electric Power Market System with other participating institutes such as LG Chemicals, SK Innovation, Hyosung, LSIS, KERI, Korea Polytechnic University, Bitek Information & Communication, Korea East-West Power, and Gwang Sung E&C. The period of this national project is three years, from June 2013 to May 2014, and the budget is 21.67 billion won (US\$20.77 million). KPX has the goal to develop new energy business models in the electric power market such as the technical verification of ESS and the development of the electric frequency regulation market.

Developed countries such as the U.S. and some European countries already took the initiative for the obligation and propagation of ESS to respond to expansion of new renewable energy and improve the quality of electric power, and they are competing fiercely for predominance in the market.

Following the ceremony, the researchers from KPX and participating institutes had a workshop on ESS research projects, discussing issues such as the establishment of facilities, ways of verification, and system improvement simulation by focusing on the simulation of the effect of implementing ESS, the evaluation plan for the official authorization of ESS, and case studies of ESS overseas.

ESS is a physical energy storage system to store the energy

so that it can be used later. Energy is currently stored in many ways such as pumping-up power generation, batteries, flywheels, and air compression. The Korean ESS uses a lithium-ion battery system. Recently, with smart grids and new renewable energy receiving a lot of attention amid the recent sharply-increasing interest in energy around the world, ESS is one of the most optimized ways to increase the efficiency of smart grids and new renewable energy. BK

Main Methods of Use

1. Frequency Regulation

The imbalance of electric power supply can happen in real time, and to maintain the preset frequency of 60Hz, the output of existing electric power plants is controlled according to the increase and decrease of demand. This is called a frequency regulation service. ESS has come to replace existing electric generators for charge and discharge functions. Now, ESS has come to replace existing electric generators for charge and discharge functions.

2. Demand Management

Management of energy demand can be implemented using the demand responses from the demand response business owners.

3. Load Leveling

When there is a big difference in electric power usage between night and day, there will be a lack of energy during the day and a waste of energy at night. So this is like the balancing system, which stores energy at night and uses that stored energy during the day.

4. Renewable Integration

The production of new renewable energy sources such as solar power and wind power depends greatly on natural resources; therefore, the amount of energy generated can fluctuate. So, when the energy is stored in ESS or discharged, the output of new renewable energy is stabilized and the usage of energy can become more efficient.

5. Emergency Generation

The emergency generation of energy, which used to depend fully on diesel generators, can be replaced by ESS.

Global CSR

KOTRA Promotes CSR Activities in Overseas with 31 Partner Companies

KOTRA announced a project to promote 52 corporate social responsibility (CSR) activities in emerging markets with 31 Korean companies. The specific projects to be done by KOTRA and 31 other companies include donating the products and services of Korean companies to solve local social problems as well as operating foreign technology schools to transfer technological experience to the local government and clients.

KOTRA acknowledges the importance of Korean companies' global CSR activities. As shown in the recent situations in Southeast Asia, foreign companies that fail to build positive images before a crisis can always become the target of attacks when crises occur in local society. KOTRA plans to continue CSR activities as "sowing seed" projects that contribute to solving local social problems and assisting Korean companies to enter the overseas markets. KOTRA created a separate organization be solely responsible for CSR activities in 2012 for the first time among public institutions.

There are 16 companies that are donating products and services this year. AOG System, a manufacturer of under-floor heating systems, decided to donate its heaters to the national kindergarten for disabled children in Belarus, which has insufficient heating for winter. Ire Chemical, a manufacturer of environmentally-friendly paints for hospitals, will renovate the first national children's hospital in Turkey with its paint.

KOTRA is promoting 27 projects to contribute to improve the quality of life and health environment in Asia, the Middle East, and Africa. This will help local governments and consumers to have a positive image of Korean companies and ultimately become a friendly foundation for possible government supply and consumer market contracts in the future.

Fifteen other companies will operate foreign technology schools through 25 businesses in Asia, Central America, and South America. Korean companies plan to transfer their own technologies and expertise to related companies and institutions in emerging countries. Participating companies will be able to form close networks with clients that are normally difficult to access and seize opportunities to introduce superior technologies to government officials and engineers in client countries.

Midas IT, a construction design software company, will teach construction design to government officials, engineers, and professors in emerging countries including India together with KOTRA, and donate its own software to local universities. This program was already implemented in the National Autonomous University of Mexico and became the regular curriculum there. Seoyeong Engineering, a small engineering company, will share the railroad design technologies with the government officials of potential railroad project client coun-



tries in emerging markets. For each company, this education program can be an opportunity to discuss practical businesses during the training period.

The CEO of IZ-FOG, a participant in KOTRA's global CSR activities for the last two consecutive years, said, "Through KOTRA's CSR program, we could establish close relationships with local buyers and government officials. Once we decide what product to donate and where to donate it, KOTRA plans, executes and advertises the projects, which is a big plus to us." BK

Overview of KOTRA's Global CSR Projects for the 1st Half of 2014

Participating companies: 31 companies in 51 projects

- Small and medium sized companies : 23 (including Midas IT) for 36 projects
- Public institutions : 5 (Korea Southern Power, Korea Electric Power Corporation, Korea District Heating Corp., Korea Cadastral Survey Corp., Mine Reclamation Corp.) for 11 projects
- Big corporations : 2 (Doosan Infracore, Osstem Implant) for 5 projects

Projects to be completed

- **Donation of participants' products and services:** Donating products and services of participating companies to countries in need to solve local social problems
- **Management of foreign technology schools :** Transferring technological experiences of companies who possess technologies to nourish local professionals

Vietnam-Korea Relations

Sparing No Time, Efforts for Strengthening Bilateral Relations

Sept. 2nd, 1945 is the most important landmark in Vietnamese history. It was the date of establishment of the Democratic Republic of Vietnam and is also considered to be the National Independence Day of the current unified Socialist Republic of Vietnam. President Ho Chi Minh read the Declaration of Independence at Ba Dinh Square, officially declaring the independence and sovereignty of Vietnam from colonialization and the occupation of France and Japan. In an interview with BusinessKorea on the occasion of Vietnam's National Day, H.E. Pham Huu Chi, Vietnamese ambassador to South Korea, expressed his sincere thanks to all Korean friends who have been side by side with him in promoting the friendship between the two peoples of Vietnam and Korea. The following are excerpts from the interview with him.

First of all, please explain the brief history of diplomatic and economic ties between Vietnam and Korea.

Vietnam-Korea diplomatic relations were established on Dec. 22, 1992, and since then the two countries have spared no time and effort in further strengthening the bilateral relations to higher and higher levels.

The bilateral relations were enhanced to a Comprehensive Partnership level in August 2001 during the Vietnamese President Tran Duc Luong's visit to Korea, and were further upgraded to a Strategic Cooperative Partnership in 2009 during Korean President Lee Myeong-bak's state visit to Vietnam. The two sides have maintained regular visits by leaders of the two countries, and expanded bilateral exchanges in other areas of security, defense, culture, and people-to-people exchange.



Ambassador Pham Huu Chi (left) poses with President Park Geun-hye and foreign affairs minister Yoon Byung-se after receiving the letter of credence.

The economic cooperation has been vigorously strengthened with a bilateral trade turnover in 2013 more than 40 times higher than in 1993, in which Korea's exports to Vietnam were about US\$21 billion, while imports were about US\$7.1 billion. We expect that the bilateral FTA negotiation will be concluded within this year in order to enable both sides to reach the target of US\$70 billion in two-way trade turnover by 2020 as set by Leaders of both countries in September of last year.

We have seen the increasing presence of Korean investors in Vietnam nowadays with more than 3,500 Korean investment projects and committed capital of more than US\$30 billion. In 2013, Korea was the third largest foreign investor in Vietnam with US\$4.46 billion, accounted for 20 percent of FDI inflow to Vietnam. There were some significant FDI projects from Korean enterprises to Vietnam, namely Samsung Electronics' investment of US\$2 billion for a second smart phone factory in Thai

Nguyen and the company's increased capital of US\$1 billion for the first factory in Bac Ninh, LG's investment of US\$1.5 billion in Hai Phong, the US\$400 million Lotte Centre in Hanoi, etc. In the first half of 2014, South Korea holds the 1st rank in FDI in Vietnam with committed capital of US\$1.55 billion among 29 countries investing in Vietnam. Moreover, Vietnam is also the main beneficiary of Korea's foreign aid. KOICA had already started its aid activity in 1991, one year before diplomatic normalization, and now Korea is ranked 2nd among foreign ODA providers for Vietnam, with commitments of US\$1 billion for the period of 2008-2011 and US\$1.2 billion for 2011-2015. Korea's development aid to Vietnam is distinctive in that it focuses on socio-economic development by sharing development experience through education and vocational training. Korea has built many vocational schools, training institutions, and hospitals in remote and underdeveloped areas in Vietnam. Vietnamese

farmers are learning about the Saemaeul Movement, a new community movement that turned poverty-stricken Korean rural areas into modern farmland. Korea is also helping Vietnam invest in IT and the high-tech industry through the transfer of expertise and experience in these areas.

Furthermore, cultural exchanges between Vietnam and Korea have also been boosted along with our strengthened political and economic cooperation. Sharing a long historical and cultural background, Koreans and Vietnamese have found no obstacles to promoting cultural exchanges. Cultural cooperation constitutes an important and indispensable part of our bilateral relations. This year, we have been organizing a number of cultural events, including a Vietnamese Film Festival in April this year in Seoul and Vietnamese Drama Performance show held in Incheon in early September this year. The annual Vietnamese Culture and Tourism Festival was held by the Ministries of Culture, Sports and Tourism of Vietnam and Korea in Seoul and Gwangju in mid-September. In addition to frequent exchanges of traditional and contemporary performances and exhibitions, there is widespread enthusiasm for Korean pop culture, or Hallyu, among Vietnamese youth. Hallyu in Southeast Asia is said to have started in Ho Chi Minh City, where the first Korean TV drama serials "Feeling" and "Golden Grass" aired in 1997. In addition, there is also increased interest in Korean studies in Vietnam, which now estimates approximately 100 professors at ten universities with about 2,000 students. In Korea, Vietnamese studies are established at four universities, and the numbers are growing.

Also with deepening bilateral relations in the socio-economic area, people-to-people contacts have greatly increased. Last year, roughly 800,000 Korean tourists visited Vietnam and 120,000 Vietnamese tourists visited Korea. More than 30 municipalities from each country are bound in sisterhood. More than 120,000 Vietnamese, including 60,000 workers and a similar

number of Vietnamese women brides, are living in Korea, while about 130,000 Koreans are living in Vietnam. The Korean-Vietnamese families have been contributing to bridging the two peoples with kinship and laying solid foundation for ever-strengthening family ties between the two countries.

Last but not least, Korea and Vietnam have also closely cooperated in regional and global issues. Our cooperation is not only strengthened within the regional framework of ASEAN, ASEAN+3, APEC, ASEM, and EAS, but also expand to other major global issues such as sustainable development, climate change, nonproliferation of weapons of mass destruction, anti-terrorism, the maintenance of peace and stability, and the freedom of navigation in the waters in East Asia.

Korean President Park Geun-hye and Vietnamese President Truong Tan Sang had summit talks on Sept. 9, 2013. Please let us know the major issues discussed and agreed on during the summit.

President Park Geun-hye had a five-day state visit to Vietnam last September and met with all leaders of Vietnam, including Vietnamese Communist Party Secretary General Nguyen Phu Trong, President Truong Tan Sang, Prime Minister Nguyen Tan Dung, and Chairman of the National Assembly Nguyen Sinh Hung.

In the spirit of friendship and mutual trust, the summit between the two Presidents focused on bilateral relations and regional and international issues of common concern.

The leaders expressed their delight at the broad and effective development of the friendship and cooperation between the two countries in all fields since the establishment of their diplomatic ties, particularly after the launch of a bilateral strategic cooperative partnership in 2009.

The leaders agreed to maintain the visits and meetings of high-ranking leaders as well as officials from the two countries' ministries, agencies and

localities, while effectively preserving dialogue mechanisms between them to deepen their relations in order to consolidate mutual political trust and cooperation.

They emphasized the need for further intensifying bilateral cooperation in economics and trade, investment, development cooperation, science and technology, employment, environment, culture and education, Official Development Assistance (ODA), tourism, and labor. They also agreed to make every effort to raise two-way trade to US\$70 billion by 2020, improve the bilateral trade balance, and accelerate the negotiations for the signing of the Vietnam-RoK FTA within 2014. They shared the view on the early signing of an agreement on labor cooperation to replace the former which expired in 2012, and agreed to implement the Viet Nam-Korean Institute of Science and Technology project (V-KIST).

The leaders concurred to strengthen mutual trust and understanding between the two peoples through diverse exchange activities, including language training, culture and arts, sports and youth exchanges. They also agreed to continue protecting and ensuring the legitimate rights of their respective citizens while increasing the necessary care and support for Viet Nam-RoK multicultural families so that they can act as a bridge between the two countries.

The two leaders expressed their satisfaction at the two countries' close collaboration and cooperation at multilateral forums and international organizations, such as the U.N., the World Trade Organization (WTO), the Asia-Pacific Economic Cooperation (APEC) and the Asia-Europe Meeting (ASEM), and regional cooperation mechanisms including ASEAN-RoK, ASEAN+3, ASEAN Regional Forum (ARF) and the East Asia Summit (EAS). They also exchanged views on the Korean peninsula situation and the maintenance of peace and freedom of navigation.

After the summit, the two leaders witnessed the signing of seven cooperation agreements between Vietnam and the RoK. **bk**

Saudi-Korea Relations

Comprehensive Bilateral Cooperation Deepened and Diversified



His Majesty King Abdullah Bin Abdul-Aziz AL SAUD, Custodian of the Two Holy Mosques.

Celebrating the 84th National Day of the Kingdom of Saudi Arabia, H.E. Ahmad Y. Al Barak Ambassador of the Kingdom of Saudi Arabia sent a Congratulatory Message to BusinessKorea, which we have reprinted below.

The national day anniversary of the Kingdom of Saudi Arabia comes at a time when the comprehensive development renaissance, the foundation of which were laid by the Kingdom's Founder King Abdulaziz Al Saud, is continuing apace. Building on the intellectual, institutional, and management foundations laid by the Founder King, and guided by his ideas and practices in development planning and economic management, his sons and successors have continued the efforts that

have resulted in remarkable achievements and successes, reflected in the continued rise of living standards, improvement in the quality of life, comprehensive construction and industrial renaissance, and advanced economic and social services throughout the country.

These achievements are eloquent testimony to the effectiveness of the devel-



Ambassador H.E. Ahmad AL-BARRAK of the Kingdom of Saudi Arabia.

opmental approach that has been adopted by the Kingdom; an approach that combines scientific planning, targeted rationalization, and continued support for private sector within the framework of economic freedom and individual initiative.

Over more than three decades, structural, socioeconomic advances have been achieved at both the macro and sectoral levels. The Saudi economy has gained enormous strength, increasing its ability to adapt to changes and developments and withstand global economic fluctuations.

At the macroeconomic level, the value of the GDP has greatly increased at constant prices. The steady growth has been accompanied by expanded use of advanced production technologies in many of the activities of the national economy, as well as by diversification of the economic structure and maximization of the role of the private sector. Successive development plans have created a climate that is conducive to the Saudi private sector, contributing increasingly to production, investment, export, and provision of employment opportunities for citizens.

Over the past years, the Kingdom has taken several important institutional and administrative development measures. These have included creating new economic entities and restructuring others, accelerating the pace of privatization, and adopting several sets of regulations aimed at controlling various aspects of economic activities, improving their efficiency, providing more incentives and guarantees to foreign investors, and simplifying and speeding up the administrative procedures relating to their activities.

Institutional and administrative modernization, development of regulations, and facilitation of procedures have led to a significant improvement in the business environment and to the attractiveness of the Kingdom for foreign direct investments. The volume of foreign direct investment increased markedly, so much so that the Kingdom has come to be at the forefront in the Middle East in this regard.

Considering the Saudi citizen to be the focus and the ultimate goal of development, the Government of Saudi Arabia has accorded special importance to human resource development. As a result, the education has grown remarkably to an unprecedented level.

Interests in the field of health care have also been keen. Hospitals, primary health care centers and supportive health care services expanded significantly, resulting in the availability of preventive and curative health services throughout the country.

Remarkably, when the development process of the Kingdom is examined, similarities in some important aspects

between its beginnings, in the reign of the Founder King, and the realities of the moment become evident. The Founder King adopted modern methods for developing agriculture and water resources, as well as for the management of oil exploration, building transportation and communication networks, provision of educational services and health care, and building the institutions of the State utilizing the expertise at home and abroad. Following in the footsteps of the Founder King, the Kingdom seeks to expand the use of science and technology in all productive and service fields.

The Kingdom is also keen on transfer of knowledge and advanced technology through foreign trade and foreign direct investment as well as on seeking the help of experts and specialists from various advanced countries, and on increasing the numbers of people sent on scholarships abroad to acquire modern knowledge and expertise. In furtherance of this trend, the Kingdom has made great strides and has begun to move towards carrying out mega-projects in its quest to lay the foundations of a knowledge economy and an information-based society. Thus, following a tradition of looking to the future set by the Founder King, his worthy sons are using development planning as an effective means for building the socioeconomic future of the Kingdom on sound, scientific bases.

I would also like to acknowledge the important diplomatic relations between the Kingdom of Saudi Arabia and the Republic of Korea. These relations have been built from the start based on mutual respect and the understanding of common strategic interests. The seeds of cooperation were planted more than fifty years ago in 1962, when the two countries established diplomatic relations. Since that year, the two countries have worked closely together to expand relations through a variety of political, cultural, and economic channels as well as cooperation and coordination in various areas and at all levels.

Saudi-Korea bilateral relations in the early stages witnessed a number of achievements with the participation of Korean experts and manpower in the Kingdom to modernize its infrastructure, mainly with the implementation of projects of roads, public buildings, water desalination, power generation, information technology, and many other industrial projects. This was, indeed, quite enough to make Korea more qualified – thanks to its companies, experts, and well-trained manpower – and thereby to win a significant share of large-scale projects carried out in the Kingdom. It also paved the way to conclude more deals between the two countries to carry out such projects based on the needs of the Kingdom and the requirements of its development. Those who review the economies of the Kingdom of Saudi Arabia and the Republic of Korea, each country's potential, as well as their status in the global economic system will not find themselves surprised at the solid Saudi-Korea partnership over the last 50 years, their capabilities to create a productive environment, and how they became members of the G20, the group of the economically richest countries in the world. The friendship between the two countries, similarities of policies and opportunities of available integration between the two countries enabled both governments to draw a roadmap



Mosque in Mecca.

of their bilateral relations with specifications appropriate for both sides, and would help in making a later stage of the distinguished partnership by enhancing the yearly added value of such a relationship.

A number of agreements and committees that connect both countries, mainly the Saudi-Korea Joint Committee, assure the two countries continue to build a genuine partnership that does not exclude any activity, so that the bilateral cooperation would be comprehensive and responsive to the interests of the peoples of the Kingdom of Saudi Arabia and the Republic of Korea.

In the field of trade, the Kingdom of Saudi Arabia is one of the major trading partners with the Republic of Korea, where the Kingdom is the fourth largest trading partner to the Republic of Korea, while Korea is the Saudi's fifth largest. There are many joint projects between the two countries and the size of the bilateral trade volume has increased over the last four years to reach US\$47 billion in 2013 and US\$23 billion in the first six months of 2014. Such extensive growth in trade relations has been attributed to complementary elements between the two countries.

Notably, both countries this year have made significant strides in the field of pharmaceuticals by signing memoranda of understanding for cooperation with the establishment of a Saudi-Korea Pharmaceutical Complex in Saudi Arabia. I believe that such MOUs between the two friendly countries will open the door of opportunity for both countries to further cooperate in the pharmaceutical field and introduce Korea's superiority in this field in the Middle East region.

Furthermore, relations between the Kingdom of Saudi Arabia and the Republic of Korea have followed an important trend, thanks to the advantages of the Korean experiences in the field of education. A number of Saudi students have been enrolled in prestigious Korean universities, and the Saudi Arabian Cultural Mission in Seoul has been opened, as the first Arab, Islamic cultural office accredited to the Republic of Korea, to guide and follow up the Saudi students' education procedures. The number of Saudi students in Korea studying various majors has now reached over 300. Bilateral cooperation in the education field has been extended to interchange and cooperation among the universities of both countries.

Finally, we ask God Almighty to bless the efforts of the Custodian of the Two Holy Mosques and his Crown Prince to raise the status of the Kingdom and ensure the happiness of its people. **BK**

Ildong Pharmaceutical

73-year-old Pharmaceutical Company to Manufacture Anti-cancer Drugs in Saudi Arabia



Lee Jung-chi, CEO of Ildong Pharmaceutical.

Ildong Pharmaceutical (CEO Lee Jung-chi) has signed an MOU with Sudair Pharma Company (SPC), a pharmaceutical company in Saudi Arabia, to build a factory to manufacture anti-cancer drugs. This contract is a part of the “Korea–Saudi Arabia pharmaceutical complex” project being promoted by the Ministry of Health and Welfare.

This MOU is very significant in that the first cytotoxic anti-cancer drug factory will be built through a turn-key contract in the Gulf Corporation Council (GCC) region, a center of the Middle Eastern economy, with the design and installation method of Ildong Pharmaceutical.

Furthermore, expected profits from both constructing the factory and transferring the necessary technology and software are very high. Ildong Pharmaceutical also secured exclusive rights to supply raw materials for a certain period of time in the future and sales royalties of the final products. The factory to manufacture cytotoxic anti-cancer drugs will be completed in the Sudair region of Saudi Arabia by late 2016.

The target products to be manufactured are 20 kinds of anti-cancer drugs including Cisplatin, Docetaxel, and Capecitabine. Royalties following local production and distribution will also be discussed later.

Most of all, Ildong Pharmaceuti-

cal plans to use this factory as a bridge to expand into adjacent GCC markets including Bahrain, the U.A.E., Oman, Qatar, and Kuwait, in which export-related procedures and policies of pharmaceutical products are shared.

For the past 73 years after its foundation in 1941, Ildong Pharmaceutical has secured many power brands in not only general pharmaceuticals but also quasi-pharmaceuticals, health foods, medical devices, and cosmetics. The company has been building strong consumer confidence through constant R&D, investment in facilities, and innovation in systems.

Ildong Pharmaceutical showed its potential by succeeding in developing the first Korean lactobacillus medicine, Biovita, in 1959, when there was no starter culture whatsoever. The company then prepared a foundation for further growth by developing Aronamin in 1963. Aronamin and Biovita are still very popular in Korea.

In particular, Ildong Pharmaceutical completed the construction of a production facility exclusively for cytotoxic anti-cancer drugs for the first time in 2010 in Korea, and built another separate factory to produce ceph-a-series antibiotics. The company also finished remodeling its existing production facility for generics, and is actively attempting to penetrate the overseas market on the basis of upgraded and advanced facilities.

Among the above-mentioned facilities, the cytotoxic anti-cancer drug production plant is the only production facility in Korea to manufacture all of the tablets, capsules, and injections. Considering the characteristics of these medicines, the facility is



designed to be perfectly immune from external pollutants. Ildong Pharmaceutical plans to apply the expertise acquired through the recent renovation of production facilities to the construction of the anti-cancer drug factory in Saudi Arabia.

Moreover, the central research lab of Ildong Pharmaceutical is working on various new drug studies especially related to resistant bacteria, malignant tumors, Alzheimer's disease, and aging. The target oriented anti-cancer drug IDF-11774 and PDF inhibitor IDP-73152 are currently under official clinical trials. Patent registration has already been completed for ID-1201, a dementia medicine produced from natural materials, and clinical trials will start soon. There are a lot of high expectations about these newly-developed drugs.

In addition to developing new drugs, Ildong Pharmaceutical is showing off its technological capabilities in biomaterials such as lactobacillus and hyaluronic acid by applying for various patents. The company recently succeeded in developing quadrupled coating lactobacillus, and is also developing various functional types of lactobacillus including lactobacillus against Helicobacter pylori and lactobacillus to prevent dementia. The company is definitely pioneering competitiveness in the field of lactobacillus.

The company has applied for many other patents as well for Industry & Company techniques of hyaluronic acid and derivatives of Vitamin D3. The company is proving its leading technologies by showing remarkable research performance in the biomaterials field. **ek**

Materials, Components Industry

Performing Well, But Advanced Materials Not All There Yet

The Korean materials and components industry, which has suffered from a chronic trade deficit, logged US\$50.8 billion in trade surplus in the first half of this year, after recording a current account surplus in 1997 for the first time on record. The achievement in the first half brightened the prospect for the era of a US\$100 billion trade surplus.

The components industry consists of 8 types of businesses: components for general machines, computers, business equipment, electric machines, electronic products, precision instruments, transport machines, and fabricated metals. The materials industry is composed of 6 kinds of businesses: materials for textile goods, chemicals, rubbers, plastics, nonmetallic minerals, and primary metals. Last year, the materials and components industry accounted for 47 percent of all exports. The industry posted US\$97.6 billion in trade surplus, 2.2 times as much as the US\$44.1 billion posted by other industries.

Amid unfavorable economic conditions like a decline in the won-dollar rate and a slowdown in Chinese economic growth, the materials and components industry has been logging growth with an increase in trade surplus so far this year, helped by a rise in imports and exports of materials and components.

According to a report on the Import and Export Trends in the first half of this year published by the Ministry of Trade, Industry and Energy, the materials and components industry saw its trade surplus surge to record highs with US\$50.8 billion in the first half, a 5.5 percent year-on-year gain. The number surpassed US\$20 billion for 13 consecutive quarters. Exports of materials and components grew 3.1 percent to reach US\$133.9 billion, while imports increased 1.6 percent to US\$83.1 billion. A rise in imports and exports is widely acknowledged to have facilitated the nation's economic recovery. In particular, exports of materials and components made up 47 percent of the total (US\$283.6 billion), which is the highest-ever half-yearly result. By region, as the country is reducing its heavy reliance on China and Japan in trade, the nation's trade structure appears to be stabilizing.

With advanced countries' economic recovery, including the U.S. and Europe, exports of electronic components rose



6.2 percent, transport machine parts 7.2 percent, and general machine parts 7.2 percent. However, outbound shipments of precision instrument parts, electric machine parts, and primary metals decreased due to oversupply and a strong won.

Meanwhile, imports of materials and components grew 1.6 percent year-on-year. In particular, a chronic adverse trade balance with Japan was improved, and the country's heavy dependence on imports from Japan was lessened, propelled by the improved competitiveness of materials and components and import diversification. In fact, the nation's trade deficit with Japan in materials and components amounted to US\$7.89 billion, a year-on-year decrease of 24.0 percent. The country's dependence on imports from Japan also reached a record low at 18.0 percent.

Korea continued to maintain a close trade relationship with China, which is the largest exporter of Korea's materials and components. To be specific, exports of materials and components grew 2.3 percent year-on-year to reach US\$45.1 billion, and the country's trade surplus increased 3.1 percent to reach US\$21.4 billion. By industry, outbound shipments of electronic components expanded 8.7 percent, primary metals 5.8 percent, and chemicals and chemical products at 3.7 percent.

Moreover, the country was less reliant on exports to China, as the nation's exports to developed markets increased, as shown by an 8.6 percent increase in outbound shipments to the U.S. and a 13.5 percent rise in exports to Europe. The nation's dependence on Japan in exports decreased from 36.3 percent in 2010, to 34.1 percent in 2012, and to 33.7 percent in the first quarter of 2014.

Nevertheless, the materials and components industry still has a long way to go in order to become the basis of the country's competitiveness. Particularly, the nation's consistent trade deficit in Japanese materials and components is a great deal of concern. Since 2011, the trade deficit has decreased for three years in a row, but the number reached US\$20.5 billion last year.

China is no exception. In 2013, Korea's materials and components industry recorded US\$47 billion in trade surplus with China. But China is nurturing its materials and components industry to reduce imports from Korea. In particular, China is Industry & Company an increasing number of intermediate goods like components or materials. Therefore, it is urgent for Korea to widen the gap with China in the materials and components field and to narrow the gap with Japan at the same time.

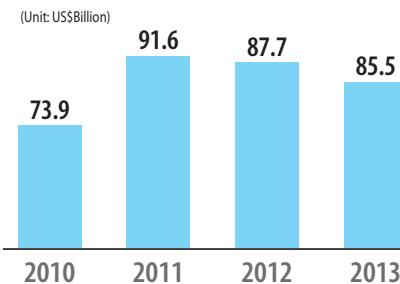
On top of that, the polarization of the industry is a serious problem. Last year, companies at the top of 5 percent in sales comprised around 40 percent of the total, and firms at the top of 5 percent in the investment in research and development (R&D) captured as much as 84 percent of the entire investment in the industry. Currently, 67.3 percent of local small and medium-sized manufacturers of materials and components are secondary or tertiary vendors, and their sales constitute merely 1 percent of those of large companies. The growth of those small and medium-sized manufacturers has already reached its limits because of the rise of China and growing competition worldwide. Moreover, investment for facilities and R&D imposes a big burden for them. As a result, the nation's first priority is to take a step to tackle these issues.

In 2001, the government established a plan to develop the materials and components industry, and it has been pushing forward the policy to foster the industry. The Park Geun-hye administration, which came up with the "creative economy" policy, announced its third plan in Nov. 2013. The government is planning to strengthen its strategy to develop leading technologies and to open the 3.0 era of Industry & Company by creating customized strategies that consider the ecosystem for the materials and components industry, including displays and precision chemicals. An increasing number of voices are voicing their opinions that job creation and restoration of the middle class should be done by fostering venture firms and hidden champions to realize the creative economy via a new high value-added materials and components industry.

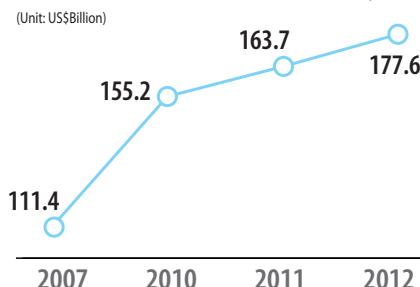
The materials and components industry is the basis of the local Industry & Company industry. Aside from the food and beverage and cigarette Industry & Company industries, it represents 68 percent of the total Industry & Company industry, 72 percent of value-added businesses, and 72 percent of total employment. Nonetheless, the materials and components industry's heavy dependence on foreign countries is an undeniable fact.

An industry analyst said, "The local materials and components industry is still far behind Japan and other advanced countries in competitiveness, and is in a disadvantageous

Exports in Materials Industry



Exports in Components Industry



position where they are chased by Chinese firms." The expert added, "A weakening root industry will deal a serious blow to large businesses. At the end of the day, the entire economy will be shaken."

Korea has a world-class infrastructure for the Industry & Company industry such as cars, ships, and medical devices. However, when it comes to high value-added and cutting-edge materials and components, the country relies on imports.

There is a lot of research being done in the U.S., China, Russia, and Japan aimed at increasing the added value of related materials, although those countries already have original technologies. Hence, technological advances in the materials and components industry are urgently needed. Experts point out that it is crucial to create a systematic policy by developing materials and components and nurturing materials and components where five senses are combined so as to deliver high added value.

In the meantime, the government decided to operate a specialized fund for materials and components as early as September this year. The fund is being raised by the Small and Medium Business Administration as part of its project to foster the materials and components industry. It is expected to be of a great help to cash-strapped small and mid-sized materials and components manufacturers with excellent technical skills. The size of the fund is 30 billion won (US\$28.7 million), 10 billion won more than planned. Previously, the Korea Finance Corporation also started to run part of its specialized fund. Starting in the fourth quarter of 2014, the funds managed by the two institutions are expected to be worth 133 billion won (US\$128 million). **BK**

Materials & Components Policy

Opening Era of \$100 Billion Trade Surplus in Materials, Components

“Korea Materials & Components Week 2014” will be held in KINTEX 10 Hall from Oct. 22 to 24. The event has been held since 2005 to promote the industry of local materials and components, contributing to the enhancement of the international competitiveness of the industry. On the occasion of this year’s event, BusinessKorea interviewed Choi Tae-hyun, Director General for the Materials & Components Industries at the Ministry of Industry, Commerce and Energy to hear about the current status of the industry and future plans to further promote it. What follows are excerpts from the interview with him.



Choi Tae-hyun, Director General for the Materials & Components Industries at the Ministry of Industry.

Please introduce the efforts and performances that the government has made to promote national components and materials industries?

After the enactment of the Act on Special Measure for the Promotion of Specialized Enterprises, etc. for Components and Materials in 2001, Korea has become the fifth largest country in the market of materials and components worldwide in 2010, following China, the U.S., Germany, and Japan, through active nourishment of relevant industries with the government budget of 3.6 trillion won (US\$3.4 billion). Trade surplus of US\$100 billion is expected in materials and components for the first time in 14 years since the policy officially started.

Exports of materials and components, which were US\$62 billion in 2001, grew 36 times greater to reach US\$261.3 billion last year. In particular, 28.3 percent of imports of materials and components depended on Japan in 2003, but this has been improved to 18.0 percent in the first half of 2014. A trade deficit with Japan lasting four consecutive years since 2010 also declined.

The number of Specialized Companies in materials and components and globally competitive, which sales of materials and components account for over 51 percent of all sales, increased radically from 483 in 2002 to 3,239 in 2013, showing 6.7 times growth. The number of Core Materials and Components Enterprises that achieved more than US\$200 billion in sales and US\$100 million in exports with key technologies, and are capable of strategic investment jumped from 155 in 2004 to 333 in 2012.

However, advanced materials which are the source of industrial competitiveness are the fundamental reasons for adverse balance of trade with Japan, and Korea needs to make persistent efforts to achieve global competitiveness. Among the trade deficit of materials and components with Japan, the percentage of advanced materials even rose in 2013 compared to 43 percent in 2003.

On the other hand, export dependency on China for materials and components greatly increased from 16 percent in 2001 to 35 percent in 2012 due to the radical growth of the Chinese economy. So efforts to diversify export countries are needed.

Accordingly, the government has been promoting Materials and Components Vision 2020 since 2011 and established The Third Fundamental Plans for Improvement of Materials and Components in 2013 for another quantum leap of materials and components.

Through these plans, Korea aims to achieve US\$650 billion in exports and US\$250 billion in trade surplus by 2020 and ultimately become the fourth largest country in materials and components, beating Japan.

Please evaluate the global competitiveness of Korean technologies on materials and components.

Although the materials and components industry in Korea overall achieved remarkable growth, Korea is still depending on advanced countries, including Japan and Germany, for essential materials and components, which require substantial investment and time to develop. The levels of Korean technologies relative to these advanced countries are 60 percent in OLED lighting materials and 50 percent in carbon fibers.

The government plans to commercialize World Premier Materials (WPM): US\$1 billion global market size and over 30 percent of market share preemptively in order to become the world’s fourth largest country in materials and components by 2020. The government is also actively promoting strategies to develop first-mover technologies through developing 200 Promising Materials and

Components in the Future in order to pioneer the future market of materials and components by 2025.

Please kindly explain the main contents of The Third Fundamental Plan for Improvement of Materials and Components.

The government established The Third Fundamental Plans for Improvement of Materials and Components for the period of 2013 to 2016 in November last year in order to prepare specific action plans to perfectly fulfill the existing task of Materials and Components Vision 2020, create outcomes, upgrade the major facilities, and realize the creative economy.

Materials and Components Vision 2020 is composed of four main strategies – developing advanced materials to predominate the future market, upgrading the components through convergence, creating components and materials to lead growth, and leading the global supply networks. There are three implementation tasks for each strategy, meaning a total of 12 tasks.

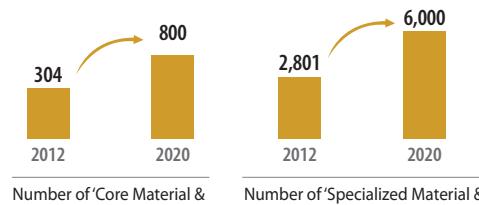
The Third Fundamental Plans for Improvement of Materials and Components evaluates the performances of policies based on existing tasks and guides the following plans. New tasks such as enhancing cooperation between private and public organizations to expand private investment in the materials and components industry and draw outcomes out of the policies in advance were newly added.

Accordingly, the government plans to form and operate a strategic investment committee and R&D support organizations with private professionals, promote constant investor relations (IR), and form the materials funds exclusively for small and venture companies.

What is the government stance for nourishing emotional materials and components?

In the past, production and supply of products were determined by producers. On the contrary, emotions of final consumers influence the designs of products these days. In short, after the eras to focus on price ('80s) and functions

Weight of Materials and Components in the Whole National Exports



('90s), emotional factors such as consumer satisfaction, brands, and designs are the purchasing competitiveness now.

Major global companies are concentrating on not only developing advanced technologies but also building emotional power, which cannot be imitated as their essential competitiveness. Emotional factors such as distinguished designs and images are strong barriers for entry. Even products which have similar alternatives are traded at expensive price if such products enhance consumer satisfaction. Bladeless fans of Dyson, premium watches of Switzerland, laptops of Apple with the aluminum body instead of plastics, the iPhone and iPod are good examples.

Korea is also making progress in the emotion-oriented industry starting from big corporations such as Samsung, LG, and Hyundai Motor. However, small and medium-sized Industry & Company companies do not have enough capital to invest in emotional research, and they lack the emotional convergence mindset to figure out what they want and how they start to enhance competitiveness.

Therefore, Korea needs to secure emotional competitiveness, the third factor in addition to the existing criteria of price and technology, in order to compete against rapidly-growing China and surpass Japan. Accordingly, the Ministry of Trade, Industry and Energy will establish operating plans including organizations, human resources, and specific expenditures to support business of emotional materials and components together with the efforts to secure a budget.

Could you introduce major performances of the event last year and the "Materials and Components Week 2014"?

At the event last year, 780 materials and components companies, research labs, and institutions inside and outside of Korea participated, and about 35,000 people attended the event for three days. When it comes to major outcomes, consultations for 608 investment cooperation cases (US\$336 million) were completed, with the participation of associates from 68 foreign companies and research labs and 304 Korean companies, and about 240 corporate technology consulting sessions were held for three days with the participation of four materials centers.

This year, the key theme of the event is to start the Era of US\$100 Billion Trade Surplus in Materials and Components, an essential milestone to become the fourth largest country in materials and components by 2020.

The event this year will be held in KINTEX 10 Hall between October 22 to 24 2014 with three sub themes of Efforts for Success, Passion for the World, and Investment for the Future.

Efforts for Success will consist of previous performances so far to reach the trade surplus of US\$100 billion, advertisement of policies and encouragement for men of merit materials and components awards.

Passion for the World will exhibit major materials and components that are greatly contributing to export and localization through government support. By the application sector, five companies will participate for each sector of R&D, credibility, global R&D, and GP.

Investment for the Future will focus on introducing technological, financial, and human resources support provided by research labs and private investment organizations in order to achieve the semifinal in materials and components in 2020. 

KMCW 2014

Catalyst for Korea as Materials and Components Industry Powerhouse



Korea Materials & Components Week 2014 (KMCW2014) will take place at the KINTEX Convention Center from Oct. 22 to 24, hosted by the Ministry of Trade, Industry and Energy and co-managed by the Korea Institute for Advancement of Technology (KIAT), Korea Evaluation Institute of Industrial Technology (KEIT), Korea Trade-Investment Promotion Agency (KOTRA), and Korea Core Industrial Technology Investment Association (KITIA).

A total of more than 20,000 visitors are expected to attend this year's event from domestic and foreign companies, M&A experts, investors, governments, and academia. Forty prizes are scheduled to be awarded to people of merit at the industry awards celebrating its 15th anniversary.

Korea Materials & Components Week 2014 will be held under the slogan of "New Era, New Challenge, New Job" ahead of Korea's attainment of a US\$100 billion trade surplus in the materials and component industry. The sub-themes are Endeavor for Success, Global Passion, and Future Investment, which cover past achievements, trade outcomes, and preparation for the future, respectively.

In the framework of the sub-theme Endeavor for Success, the policy and attainments of Korea's materials and components industry will be promoted and prizes awarded to those who contributed to the growth of the industry. GP Korea (Global Partnership Korea) business meetings will also be held in the PR booths.

Korea's main industrial materials and components will be exhibited with the sub-theme Global Passion, so that the general public can increase their awareness of the sector. Global partnering programs are slated to be underway for global market penetration, and a trade pavilion will be set up to this end as well.

At the Future Investment session, the private and public sectors will form a consensus by sharing their knowledge about

technical investment, manpower training, business networking, and other subjects. Promising items will be displayed and an R&D outcome exhibition hall will be established. Also, many more exhibition halls will be set up for greater technical investment and more opportunities for workers.

The auxiliary events are managed by the KIAT and the KEIT. The former will hold the business pavilion GP Korea with KOTRA, Reliability-Material Innovation Forum and run the industry promotion hall, technological investment hall, and the like, while the latter is in charge of the R&D outcome exhibition, the WPM briefing session, and the like.

KIAT: Connecting Local Materials, Components Makers with Global Companies

The Korea Institute for Advancement of Technology (KIAT, President Chung Jae-hoon) provides support for technical cooperation and strategic partnerships between local materials and components companies and global enterprises through the global partnership (GP) program in the materials and components sector.

To achieve this goal, KIAT holds GP meetings at home and abroad in places such as China, Europe, and the U.S. to connect local materials and components firms and global enterprises in other countries through one-to-one meetings. After the meetings, the institute constructs a system to provide support for commercializing the research and development (R&D) tasks by closely monitoring the progress and giving advice.

In addition, KIAT is engaged in projects aimed at linking local companies with other businesses, including reliability certification and Research & Business Development (R&BD) projects for mutual growth, to maintain and expand businesses with overseas buyers.

The global partnership program is a project that provides support for technical cooperation and strategic partnerships by cultivating the technical demand of global companies based in other countries to revitalize cooperation in the materials and components industry around the world, and to expand opportunities for overseas expansion by local materials and components makers.

In this project, KIAT and the KOTRA have supported local materials and components manufacturers for three years through the GP Center until local firms forge partnerships with global companies. It is not a one-time event for arranging business consultations, but a comprehensive marketing



project that connects the whole process, including joint R&D and marketing, the transfer of Industry & Company technology and transactions, the establishment of partner companies, and investment in an ownership stake. Since 2010, KIAT has held local and overseas consultation meetings to arrange one-to-one matches to have business talks between local materials and components companies and global firms based overseas about marketing and technology.

Specifically, KIAT and KOTRA GP meetings 70 times since 2010, and successfully arranged 5,000 cases of business talks between 1,016 overseas companies and 1,926 local firms. In addition to the GP Korea 2013 held in Korea, the meetings were held in China, Finland, Italy, the U.S., Korea, and Japan, starting in China in June last year. Pinpoint meetings were held 55 times. There were 1,577 total business talks, which amounted to US\$6.2 billion.

The Global R&BD project for mutual growth started in 2012 as part of an international joint project for the development of technology in the materials and components field with the aim of facilitating the overseas expansion of local materials and components companies. The aim is to provide support for the development of materials and components secured in advance through GP meetings to satisfy demand for the matched global companies.

This year's budget for the project is 2.9 billion won (US\$2.75 million), and the amount slightly decreased this year compared to the 3.5 billion won (US\$3.3 million) in 2013. The materials and components field, including Industry & Company technologies for industrial or basic materials, are supported. Between 2 and 4 billion won (US\$1.9 to 2.85 million) are provided for three years of the development period per task.

Major achievements include cultivating and supporting local small and mid-sized companies' technical development tasks that are sought after by overseas companies like Applied Materials, Boeing, Daimler-Benz, and Valeo. On average, each task is provided with 350 million won (US\$333,350) per year. Each task is expected to turn over 1.9 billion won (US\$1.9 million) a year in 2017, two years after the completion of development.

Cultivated technical tasks provide opportunities for local

small and medium-sized enterprises to enter the global market by being incorporated into global supply networks, creating the promotional merits needed for overseas market penetration in the future, and obtaining information about global standards and systems in the Industry & Company sector.

KIAT is planning to link local companies' technical development tasks that are matched through GP meetings with the R&BD project, and to consistently help long-term relationships for overseas expansion through technical cooperation.

Companies which took part in the program are very optimistic about the R&BD project. In a survey conducted in January involving 250 local firms that participated in the GP program, 64.4 percent of respondents said that they were optimistic about the necessity of the R&BD project. As for the most needed R&BD project type, they mentioned the need for the development of additional R&D tasks, followed by the development of models for commercialization (29.5 percent) and the creation of prototypes (13.1 percent). In addition, all 17 companies that went through the R&BD project, which account for 6.8 percent of respondents, replied that the R&BD project is of great help in business consultation.

KIAT, which was founded in 2009, is an organization that promotes industrial technology that leads the ecosystem of the creative economy by establishing the nation's policy in industrial technology and realizing its potential as an IT powerhouse by strengthening the foundation of technical innovations. Its goal is to innovate policies that can lead the future, strengthen convergence-type infrastructure, and help create jobs and new markets.

KEIT; Supporting R&D, Convergence in Materials and Components Industry

The Korea Evaluation Institute of Industrial Technology (KEIT, Chairman Lee Ki-sup) will participate in Korea Materials & Components Week 2014, held from October 22 to 24 at the KINTEX Convention Center located in Ilsan City, Gyeonggi Province, to increase the awareness of the importance of the materials and components industry and exhibit its R&D

outcomes.

KEIT, one of the host organizations of the event, is planning to hold an information session concerning the World Premier Materials (WPM) Project while running trade and R&D pavilions at the venue. The WPM Project Information Session's topic is Strategic Key Materials and Software Convergence. Twenty large corporations and small firms will join the session with 90 booths to share their R&D information and suggest future directions of the project.

The WPM Project, which has been in its second phase since last year, is to develop 10 key materials for a global market share of at least 30 percent and global sales of US\$1 billion by 2019. During the first phase between 2010 and 2012, a total of 830 patents were applied for and registered and 2,500 jobs were created. At the same time, the participating companies invested 760 billion won (US\$724 million) for technological commercialization and achieved sales of 72.5 billion won (US\$69.1 million) during the period to raise the feasibility of the sub-projects. The first phase of the project has contributed greatly to the reduction of trade losses against the Japanese materials and components industry and increasing exports to China, while fostering joint growth between major corporations and small and medium-size enterprises.

"The materials and components industry of Korea is getting more and more competitive thanks to the government's support and corporate participation," said the KEIT chairman, adding,

"However, we need to keep accelerating our activities because we are still falling behind in some segments, and second movers like China are emerging fast."

It is in this context that the KEIT sets up the trade pavilion. There, it displays Korea's domestically-produced products and main export items along with the organization's international R&D and global business development projects with 15 project participants. Also, various R&D outcomes, the Software Convergence Component Project and the Strategic Key Materials R&D Project will be promoted at the R&D pavilion so that the public can be more interested in the industrial sector, and new developments can be subject to expert evaluation.

The institute was established in 2009 as a national agency dedicated to R&D planning, evaluation, and management. It has provided assistance so both conventional and new industries, ranging from automobile, shipbuilding, electronics, machinery, and semiconductors to ICT, can be competitive enough in the global market. In particular, it has put in a great amount of effort so that Korean companies can work on advanced materials and components technology on their own and reduce their dependence on advanced economies.

All in one, Korea Materials & Components Week 2014 will be an important occasion to examine the accomplishment of the industry, which constitutes the foundation of the government's creative economy drive, and turn Korea into the materials and component powerhouse of the world. **BK**

Venue Map

Exhibition: Second Exhibition Hall, KINTEX

- Location: 1F, 10 Hall
- Area: 13,072 m² in gross area
- Booths: 5,500 accommodated
- Auxiliary facilities: host office and warehouses
- Convenience facilities: snack bars, nurseries, infirmaries, banks
- Multi-purpose lobby: registration, small-scale performances, coffee break



Conference: Second Exhibition Hall Grand Conference Room, KINTEX

- Location: 301, 3F, Second Exhibition Hall (301 to 304)
- Seats: 150 lecture seats, 260 theater seats, 120 banquet seats and 200 reception seats
- Presentation Facilities: 200 screens, fixed beam projectors, two wired and wireless microphones each and host office
- Planned Events: Coffee break and cocktail reception





Split Views

Government, Central Bank of Korea Split on Household Debt Issue

Expectations for economic recovery and concerns over indebted households are arising at the same time, surrounding the expansionary economic policy of the Korean government.

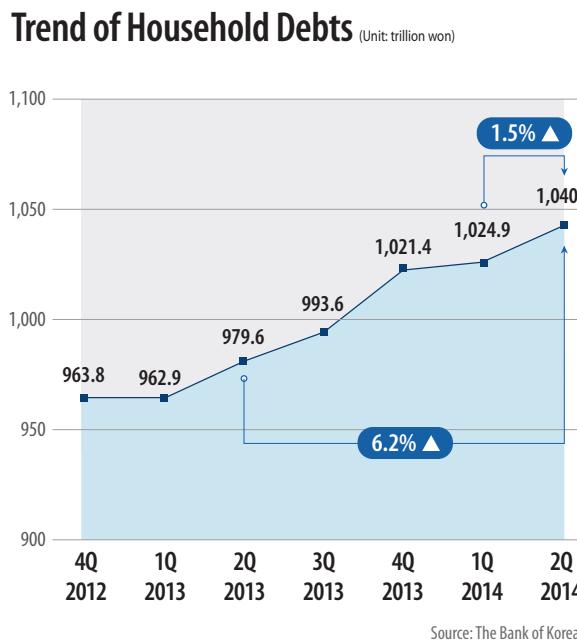
A potential problem, though, is that the Ministry of Strategy and Finance and the Bank of Korea, which are respectively in control of economic and monetary policy, have different views as to the issue to possibly cause confusion on the part of financial consumers. Deputy Prime Minister and Minister of Strategy and Finance Choi Kyung-hwan said in July that deregulation could reduce the household debt risk. However, central bank Governor Lee Ju-yeol mentioned, "We need to decrease the ratio of liabilities to income gently while improving the debt structure for some financial robustness."

At least, the government and the central bank have a consensus that the expansionary economic policy would not result in a household debt crisis. The ministry is expecting that the policy would be a key to resolving the consumer debt risk. Minister Choi, who has adhered to the policy since his inauguration, has stressed that the problem can be addressed by increasing the disposable income of households while easing up on the loan-to-value (LTV) and debt-to-income (DTI) ratios. "A key rate cut would pose less interest burden on economic

entities and encourage households to spend more," he also said.

However, the Bank of Korea's view is somewhat different, despite the consensus. "The pace of household debt increase





is not a great concern as of now, but we will take a closer look down the road, because the ratio is quite high in view of the pace of income growth,” the central bank governor said at a press conference last month. He had also mentioned in July, “A key rate cut requires a very prudential approach, because a household debt increase could narrow the room for spending in the long term.”

Economists point out that the expansionary policy is just one month old, and thus more time should be taken before any judgment is made. Still, they agree on the necessity of tighter monitoring, since the household debt-to-GDI ratio is higher than in other major economies. “It is inevitable that deregulation by the government leads to an increase in household debts,” Soongsil University economics professor Jo Sung-bong commented, adding, “Though we are not at a dangerous level yet, we will have to take a careful look with time.”

Household Debt Hit Highest Again

Household debt from banks, savings banks, and mutual funds reached another historical high. The increase in household debt from January to July this year more than tripled compared to the same period last year. Especially as other loans such as negative accounts from non-monetary institutions are growing rapidly, worries increase. The increase in other loans from non-monetary institutions in July was 1.6 trillion won (US\$1.5 billion), over five times greater than banks (300 billion won, US\$289 million).

The Bank of Korea (BOK) announced on Sept. 5 that the household loan balance of depository financial institutions was

711 trillion won (US\$685 billion) at the end of July, a 5.7 trillion (US\$5.5 billion) increase from June. Housing mortgage loans and other loans increased by 3.9 trillion won (US\$3.7 billion) and 1.9 trillion won (US\$1.8 billion), respectively, during the month of July.

After reaching a new high mark (687.1864 trillion won, US\$663.6228 billion) at the end of December last year, household debt decreased slightly in January. However, the debt started to increase again in February and has marked new historical highs every month since.

The problem is that negative signals are detected in the trends of household loans.

First of all, household loans are increasing at a much faster speed. The net increase in accumulated household loans from January to July was 23.8 trillion won (US\$23.0 billion), more than three times greater than the same period last year (7.7 trillion won, US\$7.4 billion). Furthermore, an increase of loans in the July holiday season, when demand was relatively low, was almost equivalent to June (5.9083 trillion won, US\$5.6975 billion). Compared to the same month last year, the increase in loan balances grew 5.8 percent in June and 6.5 percent in July. The increase during July was the historical highest since the statistics system first started in October 2003.

Household loans are likely to grow continuously afterwards, since real estate deregulations, including the loan-to-value ratio (LTV) and debt-to-income ratio (DTI), became effective in August, and the standard interest rate has lowered. Lee Jae-gi, senior manager of the economic statistics department at BOK, said, “We need to wait and see how things will go in the future.”

Another worry is that other loans that are directly connected to living are rapidly increasing, centered on non-monetary institutions. Among the total increase in other loans (1.9 trillion won, US\$1.8 billion), only 300 billion won (US\$289 million) increased in banks. The remaining 1.6 trillion won (US\$1.5 billion) was raised in non-monetary institutions such as savings banks and mutual funds. The accumulated amount of other loans from banks decreased by 700 billion won (US\$675 million) in July, but a total of 6.6 trillion won (US\$6.43 billion) of loans were raised in non-monetary institutions. This is 2.5 trillion won (US\$2.4 billion) greater than the net increase during the same period last year (4.1 trillion won, US\$3.9 billion).

If loans from non-monetary institutions grow, usually regional loans increase at a faster pace. However, this trend is changing. Loans in metropolitan areas increased by 2.5 trillion won (US\$2.4 billion) to 430.7 trillion won (US\$415.9 billion) in July. This is greater than the increase in June (2.3 trillion won, US\$2.2 billion). On the other hand, regional loans increased by 3.3 trillion won (US\$3.1 billion), about 300 billion won (US\$289 million) less than the increase in July. Some say that this trend indicates that real estate revitalization policies are becoming effective, starting from the metropolitan areas. BK

Dangerous Temptation

Chinese Banks in Korea Becoming Monetary “Black Holes” through Yuan Deposits

Chinese banks are rapidly absorbing money from financial institutions, including insurance and asset management companies, as well as wealthy individuals. In August especially they scraped up almost 3 trillion won (US\$2.9 billion) just 15 days after the standard interest rate was lowered on Aug. 14.

However, as insolvent loans of Chinese banks are surging this year, many are worried over the potential credit risks. Korea's Depositor Protection Act is not applicable to Chinese banks.

Moreover, since a substantial amount of these loans go to mainland China, many point out that Korea needs to capture the Chinese yuan in order to stand at the center of a yuan hub. This has come about by the assignment of RMB-qualified foreign institutional investors (RQFII), establishment of a direct transaction market, and designation of clearing banks.

According to the financial sector on Sept. 15, Industrial and Commercial Bank of China, Bank of China (BoC), and Bank of Communications of China altogether issued asset-backed commercial papers (ABCP) based on underlying assets of yuan deposits worth 4.65 trillion won (US\$4.49 billion) for the month of August. Especially after the standard interest rate was lowered in August, 2.8 trillion won (US\$2.7 billion) of ABCP was issued.

Account holders are insurance companies and asset management companies that cannot find any other places to invest their funds. An associate in the banking industry said, “As the fixed-deposit ABCPs issued these days are very popular among not only financial institutions but also the wealthy, more and more ABCPs are being issued.”

Yields on the one-year yuan fixed deposit ABCP are about 2.9 percent. In this era of ultra-low interest rates, even this rate is becoming attractive.

The Bank of Korea (BOK) lowered the standard interest rate from 2.50 percent to 2.25 percent on Aug. 14. Yields on one year fixed deposits were around 6 percent in early 2008, but have radically dropped to 2 percent. The Kookmin Super



Time Deposits of Kookmin Bank have annual yields of 2.1 percent, and Plus Damoa Deposits of Kwangju Bank have only 1.98 percent yields per annum. After the interest income tax of 15.4 percent, clients are technically empty-handed.

As Seoul branches of Chinese banks are competing with one another, the total amount of yuan deposits are greatly increasing. According to the BOK, yuan deposits amount to US\$19.97 billion, which is 29.1 percent of the US\$68.6 billion of foreign currency deposits by Korean residents in August. Last year, only one Seoul branch of Chinese banks sold ABCP time deposits. However, many Chinese banks absorbed tremendous amounts of money from the market by introducing high yields around 3 percent per annum.

Niu Siming, chairman of the Bank of Communications of China, projected that a deposit market worth approximately 300 billion yuan (US\$48.8 billion) will be created when the yuan hub is successfully established in Korea.

However, there are worries over the yuan deposit ABCP. Most yuan deposits go to mainland China. An associate who managed the related transactions explained that 75 percent of yuan deposits created in Korea are being managed in China. As yuan is moving from Korea to China, Korea might face foreign currency liquidity problems.

This phenomenon affects the establishment of a yuan hub.

Ji Man-soo, a researcher at the Korea Institute of Finance, said, "Even in the case of trade transactions, a certain amount of yuan has to be reserved in the form of deposits not directly transferred to China. Hong Kong has approximately 1 trillion CNH [Chinese yuan traded in Hong Kong]. Korea also needs to reserve three times more yuan than our RQFII quota." Considering the size of RQFII agreed in the summit between Korea and China, 80 billion yuan (US\$13 billion), there should be at least 40 trillion yuan (US\$6.5 trillion) in deposits reserved in Korea.

There are also credit risks of depository institutions of yuan deposits underlying assets. Currency swap contract counterparties might be in default as well.

The Chinese government, or its subsidiary financial com-

panies, are holding 86 to 97 percent of the shares of the state-owned commercial banks in China, which means that there is no immediate credit risk. However, this situation might always create a potential threat.

Moreover, the responsibility for investment is solely upon investors. Depending on how assets are managed, cancellation before expiration is difficult, and investments are not protected by the Depositor Protection Act.

A BOK representative commented, "Funds are tilted towards one end, and where those monies are invested is not clear. As characteristics of products are not analyzed yet, there might be credit risk problems later on. We are closely monitoring the increasing trend of yuan deposits." **BK**

Preference for Foreign Currency

Foreign Currency Deposits Increasing in Popularity

Foreign currency deposit products are gaining increasing popularity as more and more investors are expecting that the U.S. dollar will appreciate with time. In addition, the tapering by the Fed is coming to a close before the end of this year, to add to the expectations for foreign exchange gains.

According to industry sources, the foreign currency deposit balance at KB Kookmin Bank, Shinhan Bank, Woori Bank, Hana Bank, the Korea Exchange Bank, and the Industrial Bank of Korea increased by US\$2.812 billion from the preceding month to US\$36.998 billion combined as of the end of August. Also, the balance of the residents in Korea, which includes foreigners staying in Korea for over six months and foreign enterprises as well as locals, went up by US\$6.15 billion to US\$68.6 billion, which is a record high, during the same period according to the Bank of Korea's data. The U.S. dollar-denominated deposit accounted for 61.4 percent of it, increasing by US\$1.82 billion in a month.

"Some wealthy investors are putting lots of money in their

foreign currency accounts for long-term investment with the U.S. dollar showing signs of appreciation these days," said a local bank manager, adding, "Meanwhile, small investors are repeating transactions every time the foreign exchange rate edges up."

Investors are focusing on yuan deposits, too. It was equivalent to 29.1 percent of the US\$68.6 billion at the end of last month. The balance of yuan-denominated deposits skyrocketed from US\$310 million (0.7 percent) to US\$6.67 billion (over 10 percent) between late August and December last year. In June 2014, the amount jumped to US\$11.97 billion (over 20 percent) and exceeded 30 percent in August.

This is because Chinese banks recently raised their deposit rates by 0.5 percentage points, while Korean banks are providing an annual interest rate of slightly over 2 percent for one-year time deposits, which is at least one percentage point lower than what is offered by Chinese banks. **BK**



Chaebol Owner Gains

Largest Stockholders of Hyundai Motor Group Recorded Biggest Gain in Stock Valuation

The appraised equity value of Hyundai Motor Group Chairman Chung Mong-koo and his affiliates increased by close to 20 trillion won (US\$19.6 billion) between 2010 and this year. The amount increased by approximately 10 trillion won (US\$9.8 billion) for the largest stockholders of the SK Group and Samsung Group, too. Meanwhile, the value decreased by at least 1 trillion won (US\$982 million) for those of LG, Hanjin, Doosan, and Hanwha.

On Sept. 3, the Market Oversight Commission of the Korea Exchange published its data on the stock valuation and share ratios of the largest shareholders of the 10 major business groups. According to the data, the total market capitalization of the listed subsidiaries belonging to the 10 groups jumped 34.55 percent, from 486.9 trillion won (US\$478.0 billion) to 665.1 trillion won (US\$652.9 billion) between the end of June 2010 and the end of June 2014. The ratio of the subsidiaries' market cap to aggregate market value increased from 51.99 percent to 54.72 percent during the same period. The equity of the largest shareholders and affiliated persons including their family members and executive members went up by 25.03 percent to 190.2 trillion won (US\$186.7 billion), too.

It was the Hyundai Motor Group that the value of the largest stockholders showed the highest growth. The amount increased from 25.46 trillion won (US\$24.99 billion) to 45.028 trillion won (US\$44.207 billion) during the period, while the total market value of the group rose by 56.128 trillion won (US\$55.104 billion) to 139.795 trillion won (US\$137.221 billion).

The SK Group recorded the highest increase in market capitalization. The amount more than doubled, from 37.798 trillion won (US\$37.126 billion) to 87.81 trillion won (US\$86.19 billion), which can be attributed mainly to the incorporation of SK Hynix in Feb. 2012. The addition of the subsidiary alone boosted the market cap by 34.5 trillion won (US\$33.9 billion), while having a positive effect on the share price of SK Telecom and SK.

The stakes of the affiliate persons and chairman Chey Tae-won jumped 11.7 trillion won (US\$11.5 billion) during the last four years, and approximately seven trillion won of it is associated with SK Hynix. The percentage of shareholding of the largest stockholders is 24.23 percent, which is the lowest among the 10 conglomerates.

The market cap of the Samsung Group gained 36.75 percent, or 76.0996 trillion won (US\$74.7602 billion), to 282.791 trillion won (US\$277.636 billion), and Samsung Electronics' market cap increment was about 14.3 trillion won (US\$14.0 billion). Chairman Lee Kun-hee and the other largest shareowners and affiliate persons owned 29.36 percent of the shares, and their appraised value was 11.4 trillion won (US\$11.2 billion) combined.

The appraised value of the LG, Hanjin, and Doosan Groups decreased by 1.5 trillion won (US\$1.4 billion), and their market cap slightly decreased com-



Chung Mong-koo, Hyundai Motor Group Chairman.



Chung Eui-sun, Hyundai Motor Group Vice Chairman.

pared to four years ago. For example, the Hanjin Group's market capitalization more than halved from around 10 trillion won (US\$9.8 billion) to 4.746 trillion won (US\$4.662 billion). Doosan and LG lost 27.54 percent and 4.38 percent each.

However, since the beginning of the second half of this year, the value of the vice chairman's Samsung Electronics shares decreased by 226.1 billion won (US\$218.4 million) to 1.0093 trillion won (US\$974 million), too. The appraised value fell 291.3 billion won (US\$281.7 million) to 1.3008 trillion won (US\$1.2580 billion) for the Samsung Electronics shares of the chairman's wife, and Leeum Samsung Museum of Art director, Hong Ra-hee.

In the meantime, former Saenuri Party lawmaker Chung Mong-joon's shares in Hyundai Heavy Industries dropped by 366.6 billion won (US\$354.2 million) to 1.0651 trillion won (US\$1.0300 billion) during the same three months. Meanwhile, Hyundai Motor Group vice chairman Chung Eui-sun (up 312.9 billion won or US\$302.2 million) and SK Group Chairman Choi Tae-won (increased 260.4 billion won or US\$251.6 million). ok

Hyundai Restructuring

Hyundai Motor Group Speeding Up Ownership Structure Reform



Headquarters building of Hyundai Motor Group in Yangjae-dong, Seoul.

The Hyundai Motor Group is changing its shape aggressively by merging duplicate businesses, and the owners selling their shares in subsidiaries. Experts interpret this as a starting point for corporate ownership structure reform revolving around Vice President Chung Eui-sun.

According to industry sources, Hyundai WIA will merge itself with Hyundai Wisco and Hyundai Metia on November 1. Hyundai WIA, the largest shareholder of which is Hyundai Motor Company, is an auto parts manufacturer supplying transmissions, platform modules, chassis modules, power trains, and other parts. Hyundai WIA is the largest stockholder of Hyundai Metia, with a share ratio of 50.94 percent. The latter, which produces castings for auto parts, recorded 356.7 billion won (US\$348 million) in sales last year. Hyundai Wisco is responsible for the Industry & Company and sale of castings, and posted 613.5 billion won (US\$600.0 million) in sales in 2013.

"We will further enhance our competitiveness in the metallic materials field through the merger, and provide our shareholders with higher returns and

corporate value," said Hyundai WIA, adding, "Our synergy will be maximized through efforts for management efficiency improvement."

Hyundai AutoEver will absorb Hyundai Consulting & Information (C&I) on the same date. "The consolidation is to combine two system integration firms in the same group in the interest of business efficiency," it explained.

Economists see the moves as a sort of groundwork for ownership structure reform. At present, Vice President Chung Eui-sun is in possession of 347,241 shares (57.87 percent) in Hyundai Wisco. Once the merger is done, he gets 1.95 percent of Hyundai WIA with higher enterprise value than before.

"Hyundai WIA is about to join the ranks of the Hyundai Motor Group subsidiaries, where the largest stockholders own shares as in Hyundai Motor Company, Kia Motors, Hyundai Mobis, Hyundai Steel, and Hyundai Glovis," said KDB Daewoo Securities research analyst Park Young-ho, continuing, "Such a position will be a boon to its stock prices down the road."

The Vice President sold 30 percent

of his shares in Innocean on August 14 to Morgan Stanley Private Equity, Standard Chartered, Isolar Capital, and the like at a price of 300 billion won (US\$293.2 million). On the face of it, the move looks to be aimed at reducing internal transactions between subsidiaries, but some have said the disposal of the shares is to prepare financial resources before corporate succession.

Under the circumstances, expectations are going up for a merger between Hyundai Engineering and Hyundai Engineering & Construction, and ownership structure reform in Hyundai Mobis and Hyundai Glovis. "Although it is true that the vice president comes to own Hyundai WIA shares for the first time, the shareholding ratio is just 1.95 percent," Hyundai Motor Company emphasized in response, adding, "The merger is solely for more successful business in the auto parts sector and has nothing to do at all with corporate succession."

In the meantime, the Hyundai Motor Group had consolidated the automotive steel sheet business units of Hyundai Steel and Hyundai Hysco last year, while merging Hyundai AMCO with Hyundai Engineering. bk

Noblesse Oblige

SK Group's Heiress Joins the Navy



The headquarters building of SK Group.



Chey Min-jeong, the second daughter of Chey Tae-won, chairman of the SK Group.

Chey Min-jeong, the second daughter of Chey Tae-won, CEO of the SK Group, has been selected as a military cadet in the Navy. This is the first time for a woman from a “chaebol family” to become a military officer. The term “chaebol family” refers to a family that owns a large conglomerate, or chaebol, in Korea, of which there are several.

The Korean Navy announced on Aug. 29, “Chey passed the last assessment of the officer recruiting process,” and added, “She is expected to enter the Republic of Korea Naval Academy Cadet Training School on Sept. 15.”

In Korean society, it is a common practice that the third-generation chaebol family members enter their father’s or grandfather’s company as executives in their late twenties or thirties. Also, many make incomprehensible excuses to exempt themselves from the mandatory military service that is still required in Korea, or at least seek non-combat posts that require less strenuous physical training.

Even though South Korea's war with the North is mostly just a formality in the current political climate, South Korean soldiers are sometimes still in danger from each other. For instance, last June, one soldier threw grenades and fired his weapon at random, killing five and injuring eight in an army base. Last month, one soldier died after being physically abused by four of his

colleagues. So, in times like this, Chey volunteering for military service is a pleasant surprise.

Majoring in navigation, Cadet Chey will go through a one-week introductory session, a ten-week training session, and then on Dec. 1 she will be officially commissioned as a second lieutenant. After completing the elementary military and duty assignment training for three months, she will be assigned to a vessel. Out of 120 cadets that passed this recruit session, 18 were female. The competition ratio for women is 1:10.

Chey said that she decided to join the navy because she was influenced by the 19-century explorer Ernest Henry Shackleton. According to the Korean Navy, Chey stated, “I was touched by the spirit of Shackleton that led him to explore the Antarctic, and thought that I needed to develop leadership as well.”

In 1915, Shackleton explored Antarctica with 22 crew members, and his ship was trapped in ice for nine months. The crew finally escaped without any casualties by making three boats out of the wrecked ship, and returned after two years.

Sources in the business industry said Chey is a very independent and academically superb student. While she attended Beijing University, she received almost no financial help from her parents. She supported herself via part-time jobs teaching students at a col-

lege entrance exam preparation school, waitressing at restaurants, and working at a convenience store, and also received a scholarship.

After she made the decision to apply for the military, she persuaded her family, whom at first opposed the decision. The business sector is stunned by her courage.

Sources said, “It is the first case where a chaebol heiress joined the military instead of inheriting their parents’ business,” and added, “As one of society’s leaders, she showed an exemplary act of Noblesse Oblige.”

Her paternal grandfather, the late Chey Jong-hyeon, built the foundation of SK, which is now one of Korea’s top three business groups. In 25 years under his supervision, SK acquired the public enterprise Yugong in 1980 and purchased Korea Mobile Telecommunication Company (Currently SK Telecom), thus focusing on petrochemical and telecommunications as its main businesses. SK group is now pursuing global management, along with serving the public with social responsibility, scholarships, and the forestry business.

Her maternal grandfather is former president Roh Tae-woo. During his presidency, he was recognized for building diplomatic relations with northern countries, by recovering the country's relationships with Russia and China. 

International Trade

Exports Step Backwards in August for 1st Time in 3 Months

Due to partial strikes of the automobile industry including Hyundai-Kia Motor, exports declined last month.

The Ministry of Trade, Industry and Energy announced on Sept. 1 that exports in Aug. were projected to be US\$46.311 billion, a 0.1 percent decrease compared to last year. Exports this year have grown in June (2.5 percent) and July (5.4 percent) after the 1.5 percent decline in May, but stepped backward again for the first time in three months.

By industry, exports of automobiles dropped the most by 16.9 percent compared to the previous year. As the labor union of Hyundai-Kia Motor has rejected overtime work, production has declined. The adjustment of vacation days also affected. The Ministry of Trade, Industry and Energy explained that US\$300 million in exports decreased due to the one day decrease in working days, and that summer vacations and strikes dropped US\$900 million and US\$450 million of exports respectively. Automobile and automobile components account for about 14 percent of the total exports of Korea.

The monthly exports of the domestic information and communications technology (ICT) sector fell 2.1 percent year-on-year in August. Although it recorded a trade balance much higher than the overall industry average, both the exports and trade balance growth slowed down a bit. The sector's exports totaled US\$14.19 billion in August this year. The year-on-year drop is for the first time since May, when the percentage fell by 7.6 percent from a year earlier. By export destination, the amount of export to China and Hong Kong dropped by 1.4 percent to US\$7.33 billion and those to the U.S. and the E.U. fell 0.4 percent and 8.5 percent to US\$1.36 billion and US\$1.03 billion,



The container port of Busan, Korea's busiest export port and the world's 5th largest as of 2012.

respectively. Exports to Japan, in the meantime, plummeted by 24.3 percent to US\$410 million to show a decrease for four months in a row.

By item, semiconductor exports reached US\$5.24 billion with a year-on-year growth rate of 5.0 percent, while mobile phone and display panels posted US\$2.08 billion and US\$2.48 billion with a 6.6 percent and 0.4 percent increase each. However, digital TV exports showed a rapid decline of negative 40.3 percent.

The ICT sector's trade surplus amounted to US\$7.46 billion in the same month, contributing greatly to the overall trade surplus of Korea at US\$3.41 billion. ICT imports increased 5.9 percent to US\$6.73 billion during the same period.

The cumulative ICT exports and trade balance from January to August 2014 totaled US\$102.3 billion and US\$56.2 billion, respectively. In the preceding year, the respective amounts were US\$109.8 billion and US\$57.4 billion.

On the other hand, other major export items continued to show growth in exports. Steel exports rose by 9.5 percent during the same period of time, thanks to the market recovery in the U.S. and China. shipbuilding (7.5 percent), petroleum products (6.7 percent), and petrochemical products (5.6 percent) showed growth as well.

By region, exports to advanced countries were good. Exports to the U.S. and E.U. grew by 7.1 percent and 9.7 percent, respectively. However, exports to China have dropped for four consecutive months since May. Since China is actively investing in infrastructure facilities, their own production of steel and petroleum products is rising. This means that Chinese demand for Korean products are decreasing.

Imports increased by 3.1 percent to US\$42.872 billion won last month, compared to the previous year. After the 1.2 percent decline in January, imports this year have continued to grow for seven consecutive months.

By product, imports of raw materials including crude oil, petroleum products, steel, and consumer goods such as automobiles primarily increased, but imports of capital goods including machinery facilities decreased. In the case of crude oil, the total import amount increased due to an increase in both import price and quantity.

The trade balance, which is calculated by subtracting imports from exports, scored US\$3.47 billion won in August, showing a continuous surplus for 31 consecutive months. Korea achieved a trade surplus from China and the U.S., but a trade deficit from Japan and the E.U. However, as exports to China are constantly declining, the trade balance could become volatile later. **bk**

Big M&A Opportunities

KDB to Sell off Daewoo Securities, DSME



The Korea Development Bank (KDB) will sell off some financial subsidiaries under the KDB Financial Group such as KDB Daewoo Securities, KDB Capital, and KDB Life Insurance in January next year.

Other than financial subsidiaries, all corporate equity owned by KDB including Daewoo Shipbuilding & Marine Engineering (DSME) and Korean Aerospace Industries (KAI) will also be sold by next year.

The government agreed to the decision of KDB to sell off its equity in those subsidiaries by next year if possible. The structures of disposal will be divided into package deals in which several subsidiaries are sold off together, and some separate deals by company.

According to the financial sector on Sept. 10, due diligence to combine KDB and the Korea Finance Corporation will be completed at the end of this month. Integration of the loan portfolios will start next month by the earliest. All of the assets and debts will be combined by November, and all the other remaining things will be integrated by the end of

the year.

Moreover, an investigation to check the demand for financial subsidiaries of KDB including KDB Daewoo Securities, KDB Asset Management, KDB Capital, and KDB Life Insurance will begin in January next year. After the investigation on demand, companies to be sold will be divided into package deals and separate deals. Then, a three stage sale process will be reviewed. This is very similar to the sell-off of Woori Financial Group. KDB Daewoo Securities, KDB Asset Management, and KDB Life Insurance are likely to be put together as a package.

The sell-off of KDB Life Insurance has been started again, but whether it can be sold is not clear. Even KDB is skeptical, internally. Accordingly, depending on the sales status, limited partners (LP) of KDB PEF, major shareholders of KDB Life Insurance, will be asked whether or not the expiry of funds shall be extended at the end of this month by the earliest. By elongating the expiry of KDB PEF, which is scheduled for February next year, KDB Life Insurance might be sold off together with KDB Daewoo Securities as a package.

KDB Capital will be under review to determine whether it is to be sold sepa-

rately or remain as one of KDB's subsidiaries

KDB Infra will exceptionally remain as one of KDB's subsidiaries, as it would be better for KDB Infra to stay in KDB group to be engaged in national fundamental businesses such as investment in social overhead capital (SOC).

All Corporate Equity to be Sold Off as Well

The government is also considering selling off all of the corporate equity owned by KDB, including DSME. Currently, KDB holds 31.50 percent of DSME and 0.34 percent of KAI. Korea Finance Corporation has 26.41 percent of KAI. Equities of companies of which corporate bonds have been converted to stocks through restructuring will be normalized first and sold off together with creditors by stage.

The equities of these two companies will be sold off by next year. When selling off DSME, the 12.2 percent owned by Financial Services Commission will be combined and sold off together. With KAI, Hyundai Motor and Samsung Techwin each have 10 percent, and their portions will be combined and sold off together as well. BK

Nokia Patent Offensives

MS Seeks Position of Strength in Patent Fee Negotiations with Samsung, LG

The local electronics industry is demanding stricter conditions for the approval of Microsoft's purchase of Nokia by the Korea Fair Trade Commission (FTC). The demand is attributable to the fact that those conditions will inevitably have a huge influence on the industry.

Since Microsoft has software-related patents, it annually receives royalties worth US\$2 billion (around 2 trillion won) from smartphone manufacturers around the world. Nokia reportedly owns 40,000 patents, most of which are original technologies.

When selling its handset unit to the software giant, the Finnish company obtained a non-exclusive license where the company can use its patents over the next 10 years. In short, the M&A deal laid the foundations of its transformation from a smartphone maker to a Non-Practicing Entity (NPE), or a patent troll. Based on this advantage, Nokia demanded that Samsung and LG Electronics pay a large sum of patent royalties, and they are currently negotiating in the U.S.

To add insult to injury, Microsoft recently filed a patent lawsuit against Samsung, because the Korean tech giant allegedly did not pay patent royalties related to Android OS in a timely manner. On top of that, the software company argues that Samsung did not pay interest on the late payments, either. This discord started when Microsoft acquired Nokia's mobile phone business. Microsoft and Samsung signed a broad cross-licensing deal in Sept. 2011, but the Korean firm stopped paying royalties, as the M&A transaction between Microsoft and Nokia was finalized. At that time, Samsung said that the software firm violated the patent licensing deal between the two companies. However, Microsoft brought legal action against Samsung. The Korean firm is currently considering whether or not to file a counter-suit against the Redmond-based software company for patent violations.

An official high in the patent industry remarked, "Royalties demanded by Nokia and Microsoft are estimated at trillions of won for Samsung and LG, respectively." The official added, "Some in the industry say that the amount is the largest-ever paid by the two handset makers."

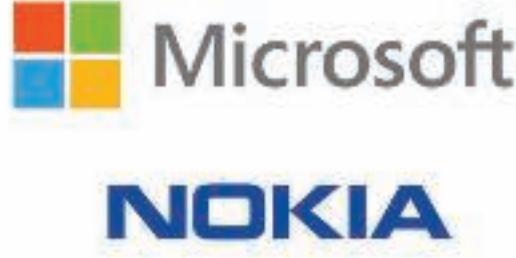
As a result, the local electronics industry has been emphasizing that the FTC should impose stricter conditions when it makes a final decision to approve Microsoft's purchase of Nokia. In particular, the industry is worried about Nokia's offensive. It is mainly attributable to the possibility that the Finnish company will focus on indiscriminate lawsuits to increase royalties and demand a sales ban as an NPE.

First, the industry is keeping a close watch on the limit of royalties set by the country's anti-trust regulator. The reason lies in the fact that the negotiations between the two Korean Android phone makers and Nokia will be heavily affected by the royalty limit.

For standard-essential patents (SEPs), the Korean regulatory body is expected to demand that the Finnish firm abide by fair, reasonable, and non-discriminatory (FRAND) patent licensing principles. Under those terms, holders of SEPs are required to let rival companies use their patents in a FRAND manner. For Non-SEPs, a provision that prohibits the transfer of patents is expected to be applied in a way that excludes the possibility of shouldering a double burden.

The duration of transfer prohibition for Non-SEPs is expected to be similar to the five years of China. As for Microsoft, the FTC is likely to create a new condition in which the software firm will not ban the sale of local smartphones, even when those handset makers violate Microsoft's SEPs. The regulatory authority is more likely to take a measure to maintain the current level of patent fees or conditions for the approval after the M&A deal. In other words, the FTC is expected to consider the current conditions of the local market, while following the Chinese government's method of approving M&A transactions under certain conditions.

Meanwhile, there was widespread speculation that at first the Korean regulator considered similar conditions imposed by the Chinese government, but it recently changed its mind. The change is largely attributable to rumors that Nokia is demanding a large sum of patent fees, as shown by its request that a smartphone vendor in China pay 20 times as much in patent royalties. Although the FTC drew up an outline for its decision



not to ignite controversy surrounding market intervention, but there remains a big burden for the final decision.

The Chinese Ministry of Commerce already approved the merger in a manner that includes FRAND principles and measures to prohibit demanding sales bans or exclusion. It was also decided to outlaw the sale of SEPs and non-SEPs at the same time. Last year, the E.U. and the U.S. approved the deal without conditions. In February, Taiwan created restrictions that ban an increase in fees between Android and Window phone makers in a discriminatory way. Nokia has about 300,000 patents related to cell phones, and 7,000 patents connected with the telecommunications area.

MS Takes Voluntary Corrective Measure

In the mean time, Microsoft said suddenly that it would carry out a "Consent Decision" procedure as the FTC, as the Korean fair trade watch is about to finalize its examination of the effects of the merger between Microsoft and Nokia. The consent decision refers to a system that quickly finalizes a case without legal sanctions, when a business operator suggests a measure to prevent the re-occurrence of damages that would affect consumers or rival companies, along with compensation for damages.

However, the FTC announced on Sept. 17, that it had decided to continue its review for Microsoft's purchase of Nokia, since it is necessary to additionally check whether or not to initiate the consent decision requested by Microsoft.

An official at the FTC said, "We held a meeting and reviewed a measure suggested by Microsoft. But we have to check the measure again because of its complex nature and a lot of issues involved." The official added, "We asked the company to submit a more specific corrective measure within three weeks." A lack of a specific mention to not excessively raise patent fees is reportedly a decisive factor in the regulator's decision.

Previously, the Korean regulatory body was expected to approve the M&A deal under certain conditions, stricter than



those imposed by China or Taiwan, which would prevent the tyranny of Non-Practicing Entities (NPEs), or patent trolls. As a result, experts are saying that the software giant suggested a consenting decision prior to the approval of transactions by the FTC.

Samsung and LG Electronics' strong opposition stemming from their worry about the creation of a patent troll is cited as a reason for Microsoft's move. The software company's decision can be interpreted to reflect a calculation that it could assert dominance over other companies in negotiations when proceeding with an increase in patent fees. That is the reason why Microsoft's request for consent decision is getting a lot of attention.

However, some point out that the procedure is not likely to be finalized. It is necessary for relevant government agencies such as the Ministry of Science, ICT and Future Planning and the Korean Intellectual Property Office to reach an agreement. Moreover, the issue has to be discussed with the Public Prosecutor General as well, since he is the one who takes legal action against perpetrators when the existing market system is disturbed. The prosecution's position is that the M & A transaction should be approved by the FTC, not through the consent decision, where a legal punishment is impossible. **BK**

Investment Competition

Tencent, Alibaba Compete for Investment in Korean, Chinese Markets



The business expansion of China's two big Internet companies are having dramatic implications for the related industries in China and Korea.

According to industry sources on Sept. 17, much attention is being paid to whether or not Shanda Games, which is one of the top five game developers in China, will finally sell its business, and what company will buy the game company. A source familiar with the matter, said, "Tencent and Alibaba have vied for the acquisition of Shanda Games, and the competition between companies with the intention to buy the game developer is in its final stages."

In the past, Shanda Games imported Wemade Entertainment's Legend of Mir 2 from Korea into China and saw the game become popular in the country. The two Chinese companies are vying to purchase the local gaming company after their competition to make an investment in Korean firms like CJ Games, 4:33 Creative Lab, and PATI Games.

Tencent has grown into the largest Internet service portal in China, after dominating the local online gaming market first and the mobile gaming market afterwards, based on the huge popular-

ity of messaging app WeChat. The company's market cap amounts to US\$160 billion.

Alibaba, on the other hand, is strengthening its position in the market to become the world's largest e-commerce company through its e-commerce website Taobao and online payment service provider Alipay. Alibaba's New York IPO is scheduled on Sept. 19 (local time). It is estimated that the e-commerce company's listing will reach US\$21.8 billion and its market capitalization with US\$167.6 billion. The size of Alibaba's New York IPO is expected to be the highest ever, exceeding the prior record of US\$19.7 billion set by VISA. The market cap of Alibaba or VISA is similar to the 177.643 trillion won (US\$169.958 billion) of Samsung Electronics.

Fierce competition between the two Chinese firms for investment is attributable to the fact that their businesses have started to overlap. Alibaba's investment in mobile messaging app Laiwang kicked into high gear, and the company also started mobile gaming business. Alibaba's moves like these are aiming at Tencent. Tencent, in turn, mounted a serious challenge to Alibaba by purchas-

ing an ownership stake in China's second-largest e-commerce retailer JD.com.

Tencent appears to stay one step ahead of the competition for the investment in the Korean market. The Internet giant invested 530 billion won (US\$506 million) in its purchase of an ownership stake in CJ Games, and bought an ownership stake worth 20 billion won (US\$19.1 million) in PATI Games, which already forged a strategic partnership with Alibaba. Tencent is also discussing its investment in 4:33 Creative Lab, which previously signed a license agreement with Alibaba for games. Alibaba, on the other hand, made a US\$120 million investment in U.S. mobile game publisher Kabam, instead.

From the perspective of Alibaba, its buyout of online and mobile game developer Shanda Games would significantly shorten the time needed for soft-landing its gaming business. From Tencent's point of view, it is difficult to be attracted to Shanda Games, but the purchase of the gaming company could undermine Alibaba's attempt to enter the gaming market. Shanda Games is considered to be valued at about 3 trillion won (US\$2.9 billion). **BR**

Facebook's Arrogance

Facebook Stops Providing Gaming Service Unilaterally

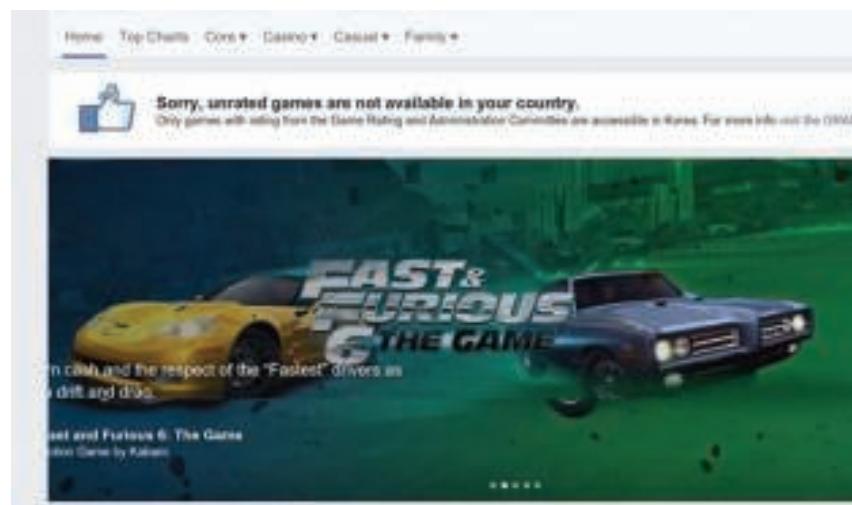
Facebook is at loggerheads with the Korean government over the classification of games on its web site and Facebook-connected mobile games. In response to the government's demand for game ratings, the social networking giant discontinued providing its gaming service and started to give a full refund for previously-purchased games.

According to industry sources on Sept. 1, Facebook blocked all of its games from the country starting on Aug. 26.

When visiting Facebook's game page as of Sept. 1, one can find a message saying, "Sorry, unrated games are not available in your country. Only games with a rating from the Game Rating and Administration Committee are accessible in Korea. For more info visit the GRAC's website." When a user tries to access a game, they are greeted with the message saying, "This game hasn't received a rating from the Games Rating and Administration Committee." Hence, it is almost impossible to use Facebook's gaming service within the nation.

After blocking games, the social media giant began to give refunds to local users. It sent e-mails to those who had purchased a game, notifying them that they could be reimbursed for games purchased after July 15.

This incident was triggered by a demand from the GRAC, which operates under the umbrella of the Ministry of Culture, Sports and Tourism (MCST). Previously, the committee demanded the R18+ classification for games on Facebook. Under the law, all games must be reviewed by the committee for R18+ classification. However, some unclassified games have been served via the social networking platform until recent-



ly.

In particular, the GRAC reportedly cracked down on unclassified games served by Facebook, in accordance with legal requirements.

Nevertheless, the social networking giant did not comply with the government's request, instead unilaterally blocking its game service. Furthermore, it was revealed that Facebook asked the government to hand over authority for game content ratings.

In fact, the MCST said, "Facebook demanded that the company be given the authority to rate games by itself, on the grounds that games provided by the firm are available on online and mobile platforms. Moreover, the company argued that it is a global company."

The government's position is that the SNS service provider is asking for special favors. An official at the GRAC remarked, "Some of Facebook's online games appear to be speculative, and some other games are under investiga-

tion by the public prosecutor's office." The official added, "We sent an official notice several times to Facebook, but the company ignored our warnings and blocked its gaming service instead." Facebook Korea responded by saying, "If games are rated, we can reopen our gaming service."

An increasing number of people are voicing their opinions that innocent users suffer as a consequence of Facebook's action. A source in the gaming industry said, "Usually, companies wait for a certain period of time, like one month, before blocking their games. But Facebook broke with precedent, starting to block its gaming service right away." The source added, "It seems like only the users are the victims." Some methods to bypass the restrictions on Facebook's page are circulating on the Internet, and a growing number of people are saying that this incident has encouraged illegal activities. **BK**



Tim Cook, CEO of Apple, introduces the new Apple Watch during Apple's launch event at the Flint Center for the Performing Arts in Cupertino, California, on Sept. 9, 2014.

Embroiled in Copying Controversy

Are iPhone 6, Apple Watch Just Patchwork Samsung, LG Products?

Apple, which has been called an icon of innovation, recently unveiled the iPhone 6, iPhone 6 Plus, and the Apple Watch. But the reveal has been “non-extraordinary,” since there wasn’t much innovation, with a large number of functions already available via other manufacturers.

According to industry sources on Sept. 14, a considerable number of functions used in the iPhone 6, iPhone 6 Plus, and the Apple Watch have already been commercialized through Samsung, LG, and Pantech. Hence, local consumers are voicing their opinions by saying that it might be difficult to anticipate innovation in Apple phones any longer.

To take one example, the Reachability function used in the iPhone 6 and iPhone 6 Plus enables a user to manipulate the device with one hand by pressing the home button twice, which leads to downward movement of the screen.

However, this feature is similar to the Mini View showcased through the LG G Pro 2. Mini View allows people to manipulate the device with a thumb by dragging it across the home button, which makes the size of the screen decrease and move downward.

The ability to sync with other devices using iOS8 featured in the iPhone 6 is already doable with Android and Google Chrome. Through a new feature called Handoff, it is possible to continue to use web browsing, maps, messages, calendars, on-screen notifications, or contact information across all your apple devices like your iPhone, Mac, or iPad. Google Chrome, however, has already provided this kind of feature in their Android OS.

The newly-upgraded iOS messaging feature can instantly shoot and send video using a messaging app, and also record and send voice. But this is

already done by several messaging apps made by local Android phone makers, and also are available via free 3rd-party apps. In addition, the new iOS feature to automatically select the best pictures through high-speed sequential mode was already introduced as Samsung’s “bust shot” and “best face” features.

Functions in the Apple Watch are not much different. For instance, the feature to turn on the screen by raising your wrist is already part of the Gear series and is also found in the G Watch.

An official at a local cell phone manufacturer said, “In the past, Apple labeled Samsung as a copycat. But it copied other companies’ ideas in its latest products this time, including the iPhone 6.” The official added, “Perhaps, it was inevitable for Apple to imitate products of the leader in phablets when trying to develop functions suitable for phablets.” **BK**



Apple's new A8 processor,
reportedly manufactured by
Samsung Electronics.

Component Dependency

Core Components for iPhone 6 Made by Korean Companies Including Samsung

The iPhone 6 unveiled by Apple on Sept. 9 (local time) includes a large number of core components, including application processors (APs), DRAM, and camera modules, made by Korean companies like Samsung and LG Electronics.

According to industry sources on Sept. 10, the new iPhone is fitted with the new A8 AP built using a 20nm process. As a chip that operates applications, an AP is a core component that plays an important part in a smartphone.

The width between circuit lines for the A8 chip is 20nm, much smaller than the 28nm class A7. Previously, Apple commissioned Taiwan Semiconductor Industry & Company Company (TSMC) to produce the A7 chip, but Samsung was reportedly assigned to manufacture the A8 processor. Experts are saying that the Korean tech company's technical skills to mass-produce 20 nm class APs in a steady fashion were reflected in Apple's decision.

Apple has been excluding Samsung Electronics from suppliers of major components, including application processors (AP) and batteries, since 2012, but is returning to its previous practices from this year. Apple decided to load the mobile AP of Samsung Electronics in

the iPhone.

In its previous iPhone 5 and iPhone 5S, Apple excluded Samsung Electronics from the list of long-term suppliers, and only used mobile DRAM manufactured by SK Hynix and Micron. Apple has been trying to reduce the supply from Samsung Electronics due to fierce competition and intense disputes over patents. However, with Chinese smartphone makers like Xiaomi Tech and Lenovo recently entering the market, the demand for mobile DRAM rose rapidly. In order to meet the production target right before the release of new model, there is no solution other than to greet Samsung Electronics, the number one company in mobile DRAM, again. As a result, Apple signed a contract with Samsung for DRAM supply once again, two years after its initial agreement.

DRAM Exchange, a market research company, projected, "Major manufacturers do not have expansion plans for their facilities. As Apple is preparing to launch new products including the iPhone, iWatch, and MacBook Air, supply of mobile DRAM is very tight."

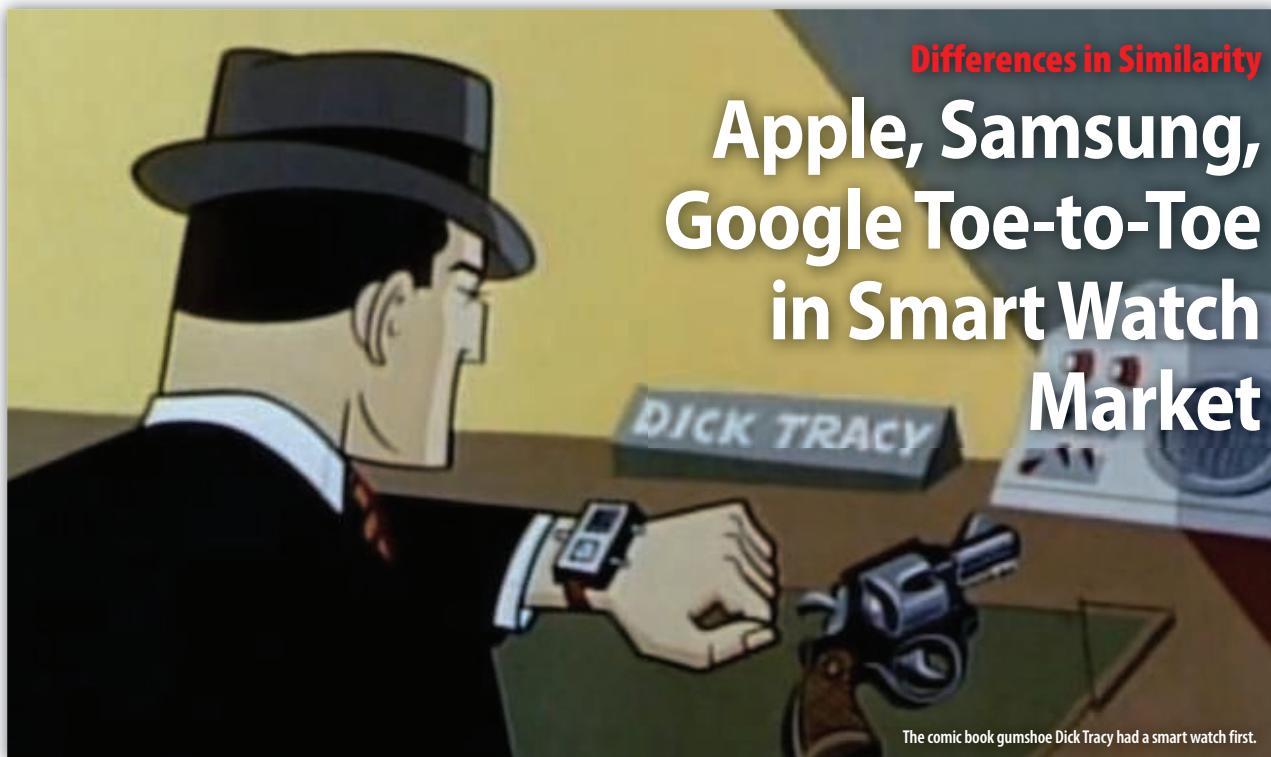
The 4.7 inch iPhone 6 and the 5.5 inch iPhone 6 Plus also come with higher resolution Retina HD displays.

Apple also increased purchases from Samsung Display. Although Apple attempted to decrease its dependence on Samsung Electronics by having supply contracts of panels with Sharp of Japan and AUO of Taiwan, Apple had to suffer from production suspension due to late supplies. In fact, Apple accounted for 9 percent of the total sales revenues of Samsung Display during the first quarter of this year, a 6 point increase from a year ago. This exceeds 8 percent, which was recorded before Apple tried to decreased purchases from Samsung Display.

The LCD-based Retina display has been mainly produced by LG Display and Japan Display. Taiwanese AU Optronics and Chinese LCD maker BOE reportedly started to mass produce the Retina display, but it is not clear whether or not they actually entered into a contract with Apple.

The iPhone 6 Plus sports an 8 megapixel iSight camera with optical image stabilization. The camera module was reportedly manufactured by LG Innotek.

Apple is also said to have contracted with LG Innotek to supply a large number of printed circuit boards to connect the components within their devices. BK



This year's Internationale Funkausstellung, or IFA 2014, is characterized by not just smartphones and home appliances but also wearable devices. Samsung Electronics, LG Electronics, Sony, and ASUS are exhibiting lighter and more advanced wearable devices there.

Samsung Electronics unveiled its second-generation smart watch, titled the Gear S, at the fair. The Gear S allows phone calls via a 3G network alone, without being tethered to any other device. Another of Samsung's exhibits is named the Gear VR, a whole new type of wearable device supporting virtual reality.

Apple unveiled its iWatch along with the iPhone 6 right after the closing of the show. The iWatch supports health-care and smart home controls. Motorola presented its Moto 360 immediately ahead of the opening of IFA 2014. It was made public at the Google Conference in June to much attention.

As Apple joined the smart watch competition to vie with Samsung Electronics and Google, the three compa-

nies' smart watches have similar functions and concepts, but take different approaches. Keen attention is being paid to which one will win the race.

The common features include heart rate sensors, accelerometers, GPS, gyroscopes, voice commands, text messaging, and voice calls. Both those of Samsung Electronics and Apple are approaching the market in partnership with the fashion industry, too.

However, the three companies' products are somewhat different in nature. For instance, the concept of the iWatch is an individually-tailored watch. It is 38 mm by 42 mm and the three versions of Apple Watch, Apple Watch Sport, and Apple Watch Edition will be available. These use stainless steel, silver aluminum, 18K yellow gold, space black stainless steel, space gray aluminum, and 18K rose gold with the six types of straps of link bracelet, plastic sports band, leather loop, classic buckle design, modern buckle design, and Milanese loop. The 11 basic screens reflect users' preferences as well. It is a highly-customizable piece of jewelry.

Meanwhile, Samsung Electronics is emphasizing that its Galaxy Gear watches are smart gadgets that are capable of running on their own. The Gear S, which was unveiled on Sept. 3, comes with a SIM card so that it can provide 3G communication even when disconnected from a smartphone.

Google, in the meantime, is focusing on the concept of an auxiliary device for a smartphone. Unlike Samsung Electronics and Apple, Google allows its Android Wear to interwork with any device running on Android 4.3 OS. The idea is to maintain its presence as an open platform provider in the wearable device sector as well.

Another difference is that Apple focuses on the conventional functions of watches, whereas Google and Samsung Electronics put emphasis on smart features. Samsung Electronics scaled back the user interface of its smartphone onto the watch screen, while Apple reshaped the user interface to be suitable for its watch and left a side dial as found in an analog watch as it is. The dial is used to magnify or reduce the screen. *BK*

Concern over Monopoly

Google's Mobile OS Monopoly Encouraged by Reverse Discrimination



Rep. Jang Byung-wan from the Science, ICT, Future Planning, Broadcasting, and Communications Committee held a forum aimed at finding solutions for Google's domination and reverse discrimination on Sept. 18.

An increasing number of people are voicing their opinions that the main reason for Google's monopoly in the local ICT industry is the government's reverse discrimination against local companies, calling for an urgent improvement of the system.

On Sept. 18, Rep. Jang Byung-wan from the Science, ICT, Future Planning, Broadcasting, and Communications Committee held a forum aimed at finding solutions for Google's domination and reverse discrimination against local companies in the ICT industry. Experts who attended the event pointed out that the requirement by Google to feature its apps on Android devices in priority and the discriminatory application of value-added taxes are reversely discriminating local companies.

Hwang Tae-hee, a professor at Sungshin University explained, "Google accounts for 53 percent of the global mobile operating system (OS) market, but its share of the local market amounts to 90 percent." He added, "This difference is attributable to the government's regulations that discriminate against local companies."

The professor also pointed out, "Based on Android's market dominance, Google is engaged in unfair business practices that are detrimental to consumer choices and interests. For example, the company forces its apps to be built

on Android devices in priority, refuses to register third-party app markets, and charges high fees for apps on the Google Play Store."

When asked why apps that are previously-built on mobile devices are popular, he responded by saying, "Among the top 10 apps, 6 out of 7 previously-built apps are Google apps." He added, "The phenomenon is due to the fact that Google virtually bundles its apps into the Android system to exert leverage over the app market through its dominance in the mobile OS platform."

Professor Hwang also remarked, "Under the government's guidelines for advance installation of apps on mobile devices, the Google Play Store, which is Google's app market, should be classified as a non-essential app that can be deleted by users. But it is regarded as an essential app instead." He continued by saying, "This will discriminate against local business operators."

Last January, the Ministry of Science, ICT and Future Planning announced guidelines for the pre-installation of apps on smartphones. According to the guidelines, apps needed for delivering features or technologies of hardware or for installing or running an OS are classified as essential apps, and other kinds of apps as non-essential. Those guidelines were made to give users a right to delete non-essential apps.

During the discussion, the issue that Google does not let third-party app markets register on the Google Play Store was pointed out as a representative unfair business practice.

An official at SK Planet stressed, "There are a lot of cases in which companies get around regulations when their servers are located overseas. So, the problem is that regulations do not apply to all in a fair manner." The official added, "Local companies are called a market dominator subject to regulations when their market share is more than 50 percent. However, foreign companies like Google are not regulated by the law, even though Google dominates the market with more than 80 percent share."

Meanwhile, Park Jong-soo, a professor from Korea University, noted, "There is growing controversy over the legal jurisdiction over imposing value-added taxes, since there is a distinct difference between local and foreign companies in applying value-added taxes. So, we need to consider specifying the jurisdiction in a law."

Major foreign countries such as the E.U. are actively seeking to eliminate reverse discrimination and to have regulations apply to all companies in a fair way in order to stop Google's unjust moves through its monopoly of its mobile OS.

Rep. Jang pointed out, "The mobile market is worth merely 3 trillion won (US\$2.8 billion). But, in fact, it is directly connected with the market dominance of the ICT industry, which is estimated at 400 trillion won (S\$384 billion) per year. The legislator added, "Currently, local companies are harmed by the government's reverse discrimination in the mobile market, which will ultimately decide the success or failure of the ICT industry. I think that is utterly absurd." **bk**

Entry-tier Leader

Lenovo Beats Samsung in Global Entry-Tier Smartphone Market



Samsung Electronics conceded the position of number one in sales to Lenovo of China in the world's entry tier smartphone market for the first time.

Strategy Analytics (SA), the U.S. market research company, announced on September 11 that Lenovo beat Samsung

Electronics in the entry-tier market in terms of smartphone sales by price segment for the second quarter.

Samsung Electronics has always been the number one in all price ranges, but Lenovo beat Samsung during the second quarter. SA did not disclose the

actual sales of Samsung Electronics in this sector though.

The budget phone market has relatively low impacts to profits, but is very important in terms of brand awareness, considering that smartphone market rank is based on sales volume. Losing the entry-tier market might lead to difficulties in maintaining the status in the global smartphone market.

Especially, as the smartphone market becomes saturated, the center of the market is moving from the high end to the low end. This means that the entry-tier market is becoming even more important.

According to the market research in China recently done by Canalys, Lenovo chased Samsung Electronics by 0.2 percentage points only. Lenovo was also ranked fourth in the global smartphone market with a market share of 5.4 percent.

SA explained that the smartphone sales of Lenovo are largely concentrated in the Chinese market. Other than the Chinese market, Lenovo is still remaining as a small smartphone manufacturer.

BK

Low-priced Penetration

Huawei Enters Korean Mobile Market with Honor 6

Huawei, the world's third-largest smartphone manufacturer, will enter the Korean market by releasing the Honor 6 at a price below 200,000 won later this month.

Strategy Analytics (SA), the U.S. market research company, is planning to supply the handset via Media Log, the MVNO subsidiary of LG U+.

The Honor 6 is available at US\$359.9 in the Chinese market. Despite the cheap price, it supports broadband LTE-A. In Korea, the price is expected to be lowered to around 100,000 won (US\$96.70), owing to the subsidy.

At present, the Sony Xperia E1 and



Huawei's low-priced Honor 6 smartphone.

the Acer Z150 Liquid Z5 are imported low-price smart phones similar to the Honor 6 that are available in Korea. "The other Chinese brands such as Xiao-

mi and Lenovo are likely to follow Huawei to do business in the Korean market in the near future," said an industry expert. BK

Challenges to Korean IT Hardware

Chinese Companies, Apple Challenge Korean Firms in Hardware

So far, Korean tech companies like Samsung and LG Electronics have been recognized for their world-class technical skills and hardware. They have maintained the top spot in smartphone, TV, and semiconductor rankings based on the latest and first-class technology in hardware and excellent Industry & Company skills.

However, this competitive market landscape is changing rapidly. Apple and Chinese companies have started to threaten Korea's strengths of hardware technology while maintaining their own strengths.

The representative example is the release of phablets by Apple. In the past, Apple manufactured only 4 inch smartphones, but it debuted the 4.7 inch iPhone 6 and the 5.5 inch iPhone 6 Plus at its headquarters on Sept. 9 (local time). In addition, it unveiled its smartwatch called the Apple iWatch.

These two smartphones are aimed at the phablet market led by Korean companies like Samsung and LG Electronics. The compound word "phablet" is formed from the words "phone" and "tablet," which is hugely popular due to its convenience in surfing the Internet or watching videos.

The iPhone 6 and the iPhone 6 Plus are products that challenge the belief of the late Apple co-founder Steve Jobs, who stressed, "The size of a smartphone should be smaller than the palm of one's hand. No one would buy phablets."

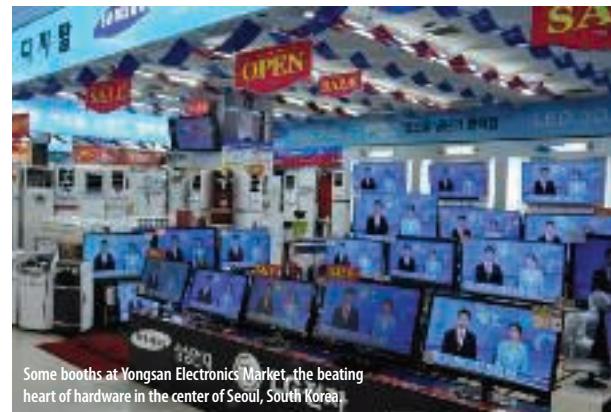
Apple Changes its Strategy

Previously, Apple made 4 inch or smaller smartphones in accordance with Steve Jobs' direction. Thus, the phablet market was dominated by Korean companies like Samsung and LG to the extent that Samsung accounted for 34 percent of the global phablet market in the second quarter of this year. However, Apple directly challenged Korean firms this time by releasing the 5.5 inch iPhone 6 Plus.

The U.S. tech company has been widely acknowledged to have expertise in software and design, whereas Korean firms have a competitive advantage in hardware. Nevertheless, Apple decided to go head to head with Korean Android phone makers in hardware. Apple's 5.5-inch model is equipped with hardware similar to that of the 5.7 inch Galaxy Note 4 or the 5.5 inch G3.

The iPhone 6 Plus is slimmer and lighter than the Galaxy Note 4. The 4.7-inch iPhone 6 is larger than its predecessor. Apple has superb technologies in software, and it can use its own smartphone operating system. The U.S. firm is threatening Korean IT companies by adding technical skills in hardware.

Samsung and LG use Google's Android for mobile devices.



Some booths at Yongsan Electronics Market, the beating heart of hardware in the center of Seoul, South Korea.

Like Apple, Samsung is moving forward with a plan to develop its own operating system, software, and content, but it has yet to build an IT ecosystem.

Meanwhile, the smartphone market is in stalled growth mode, but the size of the phablet market is increasing rapidly. Market research firm IDC predicts that each year the phablet market will grow 60 percent on average by 2018.

Apple is also going to compete in the smart watch market dominated by Samsung. The Korean tech giant continues to dominate the worldwide smart watch market with a share of 73.6 percent as of Q2 2014. LG already revealed its new smart watch to target the market. With Apple entering the market, a change in market dynamics is expected.

Chases of Chinese IT Companies in Hardware

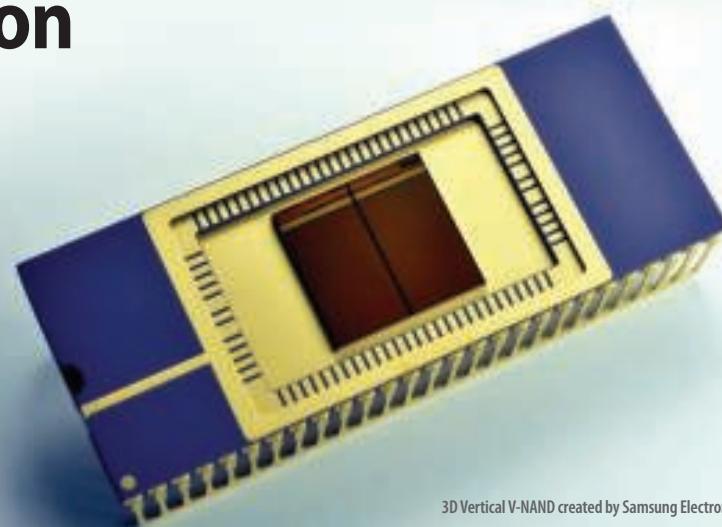
Chinese IT firms, which have touted their low prices, are also threatening Korean firms with excellent technical skills in hardware.

Chinese electronics company TCL surprised the world by showcasing the 110 inch curved UHD TV and the first quantum dot TV, which is called a next-gen TV, at IFA 2014, ahead of Samsung and LG. Lenovo also displayed 64-bit smartphones, which are similar to the Galaxy Note 4.

Chinese smartphone makers have started to introduce products with hardware, which can be matched to that of Korean firms. Now, Chinese competitiveness in hardware is considered to go beyond the imitation level. Related to this issue, Jung Tae-myung, professor of the Department of Computer Engineering at Sungkyunkwan University, remarked, "The era where Korean companies took advantage of hardware is gone."

Chip Competition

Semiconductor Companies Focusing on Lamination instead of Microfabrication



3D Vertical V-NAND created by Samsung Electronics.

The focus of the competition among memory semiconductor manufacturers is shifting from microfabrication to lamination, as microfabrication techniques for reducing the circuit line width reach the structural limit of 14 nanometers. Under the circumstances, it is expected that the finesse of vertical memory cell stacking will be the key to successful business.

Samsung Electronics recently finished the development of a 14.3-nanometer NAND flash memory device and adjusted the microfabrication goal to 14.2 nanometers. In the semiconductor industry, the nanometers regularly talked about measure how wide the circuit line is. The shorter the width, the higher the performance and the lower the production cost. Global semiconductor companies have increased their investment in microfabrication technology with this goal in mind.

Samsung still dominates the NAND flash market.

At present, Samsung Electronics is Industry & Company 20 nm chips when it comes to DRAM. The NAND flash process has been refined from 40 nm

to 16 nm since the mid-2000s. Industry experts consider 14 nanometers to be the final stage of microfabrication, because 10 nm NAND flash chips, although technically feasible, are not profitable in view of the required equipment investment.

The reduction of the circuit line width for smaller and finer chips allows more chips to be produced per wafer. However, it narrows the gap between the cells as well, which can cause interference and instability. Samsung Electronics' target correction by just one-tenth of a nanometer has to do with this limitation.

This is why an increasing number of companies are trying to make a breakthrough with 3D semiconductor devices, in which cells are stacked vertically. 3D chips are particularly advantageous in terms of capacity, durability, and power efficiency.

It is Samsung Electronics that has the most advanced cell stacking technology. It was the first to announce the mass production of 24 layer 3D V NAND flash memory in August last year, and released the world's first

Sales of NAND Flash as of Q2, 2014 (Unit: US\$ billion, %)

Samsung	2.354 (30.8)
Toshiba	1.566 (20.5)
Sandisk	1.510 (19.7)
Micron	0.99 (12.9)
SK Hynix	0.72 (9.5)
Others	0.51 (6.6)

Sales of NAND Flash as of Q2, 2014 (Unit: US\$ billion, %)

Samsung Electronics	4.237 (39.1)
SK Hynix	2.974 (27.4)
Micron	2.729 (25.2)
Others	0.895 (8.3)

32-layer V NAND product in May this year. Some experts predicted that the company has already completed the development of a 48-layer prototype. In addition, it released through silicon via (TSV)-based 3D DRAM on August 27.

Toshiba is also increasing its investment in 3D NAND. It is planning to set up additional Industry & Company facilities for the purpose by 2016 and produce 40 to 70 layer V NAND in the near future. SK Hynix is going to start the mass production of 3D NAND within this year, too. Insiders are estimating that the number of layers could reach 100 within a few years. ek

Scandal at IFA

Samsung-LG Disputes over Washing Machines Expanding into War of Words Outside Court

Samsung Electronics said on Sept. 14 that it has requested an investigation into the senior officials of LG Electronics, including Jo Seong-jin, CEO of LG's home appliance business unit, on suspicion of intentionally damaging its washing machines at a shopping mall in Germany.

The incident occurred on Sept. 3 in Berlin just ahead of the IFA trade show, where the two South Korean IT giants competed for the spotlight in home appliances. An employee at the home appliance mass-merchandiser SATURN Berlin Europa-Center called the police, saying that he saw LG officials damaging the appliances, specifically pressing down on the doors until they wouldn't close properly.

The case was reportedly closed after the police arrived at the shop and the LG officials agreed to buy all of the damaged products.

Samsung Electronics, however, asked the prosecution to investigate the case in Seoul on Sept. 11, saying that the damage was deliberate. Samsung said that it confirmed through CCTV footage that those LG officials damaged 2 washing machines at Saturn's flagship store in the Europa Center and three at the store in Steglitz. The two stores are located 6 kilometers away from each other. Samsung believes that LG officials intentionally broke electronics products produced by Samsung by visiting the two stores, which are within a 15 minute drive.

LG said in a statement, "It is common sense that company officials, including executives, wouldn't have needed to get involved in such conduct if the intent was to damage a product of a particular company to hurt the brand's



Samsung's Front Load Crystal Blue Washing Machine has come under attack recently in Germany.

image." Denying the allegations vehemently, LG stressed, "It is usual for any firm to examine rival companies' products and user environments during overseas trips." But it is unclear why five washing machines were damaged.

Samsung said in a statement that it had not pressed the issue in Germany in order to avoid damaging Korea's reputation abroad. But it wants a judgment about the event here at home in order to maintain fair competition.

Heated Discussions

Some say that LG representatives deliberately broke the washing machine, but others think that the washing machine made by Samsung may be too weak.

LG representatives said, "Unlike washing machines made by other companies, only the hinge of a specific model was weaker than that of any other product," arguing that the incident happened since the product was not strong enough.

The prosecution's investigation and the trial will ultimately decide whether or not LG damaged the consumer electronic product on purpose, but the two tech companies will be inevitably dragged through the mud regardless.

The controversial Crystal Blue

washing machine was made in collaboration with car designer Chris Bangle. Its strength lies in the door, which can open up to 170 degrees, thanks to one hinge connecting the door and the body. Samsung's new washing machine is a flagship product aimed at achieving the goal of becoming the largest household appliance maker in 2015. Therefore, it is natural for the company to react to the product's damage in a more sensitive manner.

It is going to take at least a few years for the court to determine whether or not LG acted on purpose, and therefore their dispute is expected to last for several years. An industry source said, "I hope that there is a certain amount of friendly rivalry between the two companies where the two firms compete fair and square using technology and product quality."

Both of the Korean tech giants already announced that they would achieve the number one position in the global home appliance market. Samsung and LG currently rank second and third in the market, following Whirlpool. They have also fought over a larger capacity refrigerator, greater market share for air conditioners, and patent rights for display products. 

Era of Smart Cars

Popularization of Smart Cars Heating Up Competition

Global automakers' smart car competition is heating up. The Hyundai Motor Group is planning to unveil its first self-driving vehicle in 2016 or later. To this end, it is going to wrap up the development of a self-driving system for use on expressways by 2016.

Audi, in the meantime, recently announced that it is carrying out the world's first experiment on self-driving in a traffic congestion situation in Florida. The system, dubbed Traffic Jam Pilot, enters self-driving mode when the vehicle goes 64 kph or less, and then lets the driver to take the wheel when the traffic gets better.

GM already finished test driving Cadillac vehicles that include Super Cruise for expressway driving. The feature is scheduled to be commercialized in two years. BMW is proceeding with its research on self-driving technology it unveiled seven years ago, and Volvo is working on automatic traveling using wireless communications.

The Japanese government is planning to cut the automobile tonnage tax in half for three more years for the popularization of trucks and buses equipped with advanced safety functions



such as collision warning and automatic braking. The Fuji Chimera Research Institute recently predicted that the number of cars equipped with high-tech safety systems like the advanced driver assistance system (ADAS) will increase rapidly from 2016 to reach 60 million by 2030. The ADAS is a system that is characterized by wireless communications-based location information exchange for inter-vehicle distance maintenance and sensor signal-based avoidance of collisions with pedestrians and other cars. bk

Dream Cars

Self-driving Vehicles Available in a Couple of Years

Google is working on a self-driving car as well.

Audi, in the meantime, recently announced at the opening ceremony for the World Congress on Intelligent Transport Systems that it is planning to release a quasi-self-driving vehicle, which adjusts its own speed via wireless communication with other vehicles, in two years of time. The ceremony was held on Sept. 7 (local time) in Detroit, Michigan.

Specifically, GM is going to include inter-vehicle wireless communication in the 2017 Cadillac CTS, which will be available from the summer of 2016. Wireless transmitters and receivers will be in operation to share speed, location, and the necessity of deceleration with nearby vehicles. In addition, cameras and radar equipment are used to maintain a constant distance from the vehicle ahead, stay in the lane, and to stop automatically when traffic demands it.



In fact, other automakers like Mercedes Benz have already unveiled cars providing similar functions during low-speed driving. However, GM's is the first one that is capable of both wireless vehicle-to-vehicle communication and quasi-self-driving on expressways.

These days, an increasing number of countries are working on such technology for accident prevention based on information sharing. The Ministry of Land, Infrastructure and Transport of Korea began the examination of similar techniques, including radar-based emergency detection, in July this year and is aiming to put them into commercial use before the end of 2017. bk

Conflict within Labor Unions

Radical Labor Unions Making Bitter-Sweet Stories among Korean Carmakers



Radical unions of automakers block any rational negotiations with the managements.

Most of Korean automakers are groaning over disputes within labor unions. The companies are trying to wrap up their collective wage negotiations as early as possible, but feuds in the unions are holding them back.

"The management suggested setting up a new committee by the end of March next year to discuss the ordinary wage issue, but the hardliners in the union are dead set against it," said a source in the labor union of Hyundai Motor Company on Sept. 10. Earlier on Sept. 2, the management and the union failed to reach an agreement during the 19th round of talks. At that time, the former suggested the latter to discuss detailed action plans concerning ordinary wages by March 31, 2015, making a concession from its previous stance that the issue should be talked over after the result of the litigation becomes available. The labor leaders agreed to the suggestion, but the hard-line faction was adamantly opposed to it.

The situation is very similar in Renault Samsung Motors, too. Its

employers and employees have failed to reach a consensus on additional manpower utilization and facility investment, even after the repeated negotiations including the general meetings held late last month and on Sept. 5. As in Hyundai, it was the hawks that thwarted the talks.

Renault Samsung Motors has two labor unions, unlike Hyundai. One that has 2,500 members has entered negotiations with the company. The other, which is associated with the Korean Metal Workers' Union of the Korea Confederation of Trade Unions, has 160 members. Only the former has agreed to follow the litigation outcome when it comes to the ordinary wage issue.

Competitive Advantage

in the meantime, GM Korea is aiming to catch the reflected benefits from a strike at a competing company. In particular, GM Korea has a strategy to boost sales by launching four vehicle types within this month.

According to the related indus-

tries on August 21, the labor union of Kia Motors held a dispute management committee on August 18 and decided to go on partial strike at Gwangmyeong, Hwaseong, and Gwangju factories for four hours simultaneously. This is the first strike after wage negotiations failed this year. The strike might go longer, as the management and labor union cannot find a clue to solve conflicts regarding ordinary wages.

The labor union of Renault Samsung, which held a starting ceremony for the strike on August 18 to achieve promotion of employees in production lines and employment security, has suspended factory operations eight times so far, and is not discussing future strike schedules.

GM Korea, between Kia Motors and Renault Samsung, which are number two and four respectively in the Korean market, is quietly smiling because of potential reflected benefits from strikes at its competitors. GM Korea especially plans to launch the 2015 Chevrolet and Alpheon, Damas and Labo, living vehicles for low income people, within this month, while other automakers are suffering from conflicts with labor unions. This will leave number four Renault Samsung far behind and catch up with number two Kia Motors.

GM Korea also faced a strike crisis this summer, but wage negotiations reached a dramatic settlement last month, as the company proposes to include a regular bonus to ordinary wages, and to manufacture next generation Cruze at its Gunsan factory.

A GM Korea employee said, "Since the preliminary contracts late last month, orders for Damas and Labo already broke 2,000. Vehicles will be delivered to clients late this month." 

Local Car Market

Sales Volume of Full-size Cars Soared in August



Only full-size cars recorded a significant increase in sales in the domestic market last month, while the overall sell-through was rather sluggish due to summer vacation and the strike.

The sales of small cars decreased over 30 percent in the same month. In contrast, the full-size car sales volume increased 33.1 percent from a year earlier to total 3,219 units, excluding commercial vehicles, to show the highest sales growth rate. The sell-through of those larger than mid-size and smaller than full-size was 9,073, 4.9 percent up from last year.

The rapid surge can be attributed to Hyundai Motor's new Genesis, which made its debut in December 2013. A total of 2,116 units were sold in August this year to post 164 percent growth, compared to the previous model's sales volume for August 2013.

The 4.9 percent growth in the sub-full size segment was led by Hyundai's Grandeur (6,784 units) and GM Korea's Alpheon (340 units). At the same time, Kia Motors' Carnival led the growth of the minivan market, so the monthly total sales volume of the entire segment reached 7,585 vehicles with a year-on-year sales growth rate of 26.8 percent.

In the meantime, the sales volumes of small, mid-size, and compact cars fell by 30.5 percent, 16.8 percent, and 9.9 percent, respectively. "It is somewhat strange that smaller cars are sold less, unlike larger cars are, amid the domestic economic recession," said an industry insider, adding, "It seems that polarization in consumption is accelerating in the automobile market."

Volkswagen's Soaring Popularity

The popularity of Volkswagen is soaring in Korean imported car market. In August, it outnumbered BMW, the most popular imported car brand in Korea, in cumulative mid-size car registrations.

Specifically, a total of 98,042 Volkswagen mid-size cars were registered as of the end of July, while the number was 96,246 for BMW. This is somewhat unexpected, in that BMW has led the growth of the market segment with its 5-Series sedans.

The rise of Volkswagen can be attributed to the increasing demand for diesel cars as of late. Out of the 98,042 cars, 84,623 use diesel, while the types of fuel are more diverse for BMW – 26,260 gasoline, 69,986 diesel, and 48

electric.

Another one of the reasons is the brand's popularity with younger consumers. According to the Korea Automobile Importers & Distributors Association, Volkswagen was the favorite of those aged 20 and 40 last year.

"Young customers put practicality first, and practicality means diesel cars with higher fuel efficiency in the auto market," said the automaker, adding, "We have diversified our lineup from the Golf and been more aggressive in marketing since 2010 to better meet their demand and boost our sales." The Tiguan 2.0 TDI (second), Golf 2.0 TDI (fourth) and Passat 2.0 TDI joined the top 10 bestselling imported cars in the first half of this year.

In the meantime, Volkswagen and BMW were followed by Audi (47,294) and Mercedes Benz (28,549) in cumulative mid-size car registrations, while Mercedes Benz recorded 133,370 to be unchallenged in the full-size category. It was followed by BMW (94,548), and the number of cumulative registrations was only 9,004 for Volkswagen in this category. BK

Precarious Project

POSCO's Steel Plant Project in India in Limbo



Local residents in Odisha, women and children in front, sit in protest of the construction of POSCO's steel plant in India.

The Odisha steel plant project of POSCO looked like a perfect example of “jackpot” diplomacy after state visits of former and current Presidents to India and a quick high-level agreement to the project, but all of the effort was in vain.

In July 2008, Lee Myung-bak, former president of Korea, and Manmohan Singh, former prime minister of India, made a specific promise to “try their best to start construction [of an integrated steel plant at the state of Odisha, India] in August.” When former President Lee visited India again in January 2010, former Prime Minister Manmohan Singh reaffirmed his promise to “accelerate the project.” In a joint statement announced by the former President Lee and the former Prime Minister Singh after the summit held in Seoul in March 2012, the sentence “The leading members of two governments reconfirmed the importance of fulfilling the POSCO project in Odisha” was included.

After the administration changed, President Park Geun-hye made a state

visit to India in January this year. At the summit with the former Prime Minister Manmohan Singh, she agreed to provide various support for the successful construction of the steel plant in Odisha.

However, due to the current strong opposition of local residents, the state government of Odisha is not likely to grant a permit to deforest. In Odisha, a local civil organization recently designated a national resistance day against POSCO, and residents continue to protest constantly. Regional sentiment against POSCO has been aggravated.

According to the foreign press and industry on Sept. 4, the National Green Tribunal of India, regarding the POSCO's development of lands and mines for an integrated steel plant, decided, “POSCO is not allowed to deforest without the permission of the state government of Odisha.”

POSCO and the state of Odisha formed an MOU in 2005, which entails US\$12 billion of investment, to construct a steel plant. However, actual construction has not started yet due to the

controversies of mine exploration rights as well as opposition of environment organizations and local residents.

The Odisha integrated steel plant project of POSCO, which has stagnated for nine years, seemed to regain momentum when President Park visited India.

At the summit, President Park requested the former Prime Minister Manmohan Singh to “provide the 11 million m² of land and give POSCO the mine exploration rights.” The government explained later on that the project entered the state of settlement thanks to the state visit of President Park to India.

However, different from the explanations of the government, local residents in India and industry professionals do not expect this project to be promoted again this easily. The former Prime Minister Manmohan has already made similar promises three times before, but these were not kept.

Narendra Modi, meanwhile, was elected Prime Minister of India last May. The situation is highly likely to vary from now on. **BK**



Expanding or Slimming?

Korean Steel Industry Takes Mixed Stances

There are two extremely different stances of steel companies which are suffering from the industry recession. Hyundai Steel and the Seah Group are expanding business, while POSCO, Dongkuk Steel Mill, and Dongbu Steel are trying to come up with survival strategies through restructuring.

According to sources in the industry on Sept. 15, Hyundai Steel and the Seah Group are enhancing their specialty steel businesses for automobile materials.

Hyundai Steel is interested in acquiring Dongbu Special Steel, and is building a 1 million ton special steel factory inside Dangjin steel mill in Chungnam. If this factory starts mass production on schedule in February 2016, 600,000 tons of bar steel and 400,000 ton of wire rods can additionally be manufactured. In addition, Hyundai Steel plans to add the second continuous galvanizing line (2CGL) which is capable of producing 500,000 tons annually at the second cold rolled mill of Dangjin Steel Mill, with an invest-

ment of 129.5 billion won (US\$125.3 million).

The Seah Group signed an MOU with POSCO to acquire POSCO Specialty Steel. With this acquisition, Seah Besteel, an affiliate company of the Seah Group, will become the world's largest special steel company with the existing production facility of 3 million tons of carbon alloy bar steel and a 1 million ton stainless wire rod production facility of POSCO Specialty Steel. The entire production capacity will be around 4 million tons.

On the contrary, POSCO, Dongkuk Steel Mill, and Dongbu Steel are slimming down. They are tightly reforming financial structures through selling off or merging their minor affiliate companies.

POSCO decided to sell some of its equity in Gwangyang LNG terminal along with Posfine, the urban mine department of POSCO M-Tech, POS-HiAL, and POSCO-Uruguay. POSCO started selling off three department stores owned by Daewoo International and POSCO Specialty Steel last month.

POSCO is also very busy merging its minor affiliates. POSCO determined at the regular board meeting on Sept. 8 to change the business structure in a way that POSCO P&S manages and controls distribution and processing of steel and Posmate does B2B work.

Dongkuk Steel Mill, which entered into the financial restructuring contract with Korea Development Bank (KDB), is considering an M&A with its affiliate company Union Steel.

An associate in the steel industry said, "It is very hard for the steel industry to maintain growth, as sales revenues and operating profits are dropping due to an economic recession caused from the global financial crisis and intense competition with major emerging countries including China. In order to overcome this situation, some companies are aggressively engaged in investments and some others are executing restructuring as realistic self disciplinary actions. Depending on the characteristics, each company is choosing one option and focusing on it." **BK**

Vaccine Independence

Korea to Become World's Fifth Strongest Vaccine Country

As worries over pandemics of diseases such as the Ebola virus are increasing, achieving "vaccine independence" is becoming an essential criteria to assess the national economy and security.

In Korea, however, only ten out of a total of 27 vaccines are produced, and 80 percent, by amount, of vaccines are imported. The degree of self-sufficiency in Korea, in terms of vaccine, is very low, compared to the 59 percent of Japan and the 100 percent of the US and Europe. But Korean pharmaceutical companies are expanding vaccine development and production, which is a positive signal under the current circumstances.

SK Chemical has completed preparations for commercial production for "L House," a vaccine factory located in Andong, Gyeongsangbuk-do, with the permission of the Good Industry & Company Practice (GMP). This factory is the largest vaccine Industry & Company facility in Korea, capable of producing vaccines for 140 million people annually. Over 200 billion won (US\$195 million) has been spent in the construction and R&D of this factory for the last three years.

SK Chemical plans to produce the first cell culture influenza vaccine, which is currently under review for approval at the Ministry of Food and Drug Safety. A cell culture influenza vaccine is manufactured in three months, definitely shorter than the traditional fertile egg method which takes six months to produce vaccine, and is strongly resistant to external stresses such as avian influenza (AI). SK Chemical is also focusing on developing premium vaccine for pneumococcus, shingles, and uterine cervical cancer.

Green Cross, the first organization to develop a vaccine for influenza in Korea, is performing well in exports. Its influenza vaccine is pre-qualified (PA) by the World Health Organization (WHO), which means that quality of the vaccine is guaranteed worldwide and grants permission to supply the vaccine to international organizations.

Green Cross is rapidly increasing exports by bidding for international organizations since 2010, when the company first started to export the influenza vaccine. Green Cross won US\$23 million in orders by bidding for medicine and the medi-

cal supplies of the Pan American Health Organization, which is under the WHO.

Green Gross aims to finish clinical testing of H5N1 type AI vaccines within this year, and has embarked on developing four influenza vaccines. Clinical tests for the fertile egg method influenza vaccine has recently started, and one for a cell culture method vaccine will start within this year.

Ilyang Pharmaceutical, which built a vaccine factory capable of producing vaccines for 60 million people at Eumseong, Chungcheongnam-do, aims to produce its own influenza vaccine permitted, which was by the Ministry of Food and Drug Safety last year. This company is also preparing a vaccine for measles and hepatitis, and planning to export vaccines to underdeveloped countries that do not have sufficient supplies of vaccines and vaccine production facilities. The company started joint research with Korea University College of Medicine for the development of new anti-virus drugs and globalization of the vaccine as well.

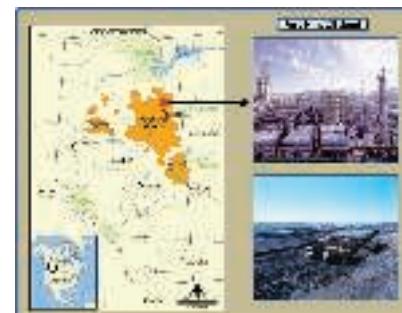
According to the Korea Health Industry Development Institute (KHIDI), the global vaccine market will grow by 11.5 percent for the next six years to US\$56.7 billion by 2017, from US\$31.7 billion in 2011. Growth of emerging vaccine markets such as China and India as well as expensive premium vaccines, improved vaccines, and combined vaccines are leading this expansion. Especially when the development of premium vaccines is successful, a lot of profits are expected. In the case of Pfizer's pneumococcus vaccine "Prevenar," which is the most sold vaccine in the world, annual sales revenues were US\$3.6 billion in 2011.

The government started to support the pharmaceutical industry by announcing the globalization of the vaccine business, which entails a national goal to become the world's fifth vaccine country by 2020. Considering the technical capabilities and development stages in Korea, vaccine businesses are expected to grow the fastest in the biotech industry. The Ministry of Food and Drug Safety presented a plan to expand varieties of domestically-produced vaccines from 10 to 22 by 2020, in order to enhance the self-sufficiency of vaccine. 



Energy Plant Specialist

SK E&C Hits Contract Jackpots in North America



SK E&C has won an exclusive deal for the largest oil sands plant construction project worldwide in Canada.

On Aug. 25 SK E&C announced the conclusion of the official contract for Fort Hills Oil Sands Project, which is worth US\$2.55 billion, on Aug. 22. Fort Hills Energy is the partnership company in which Suncor Energy, the largest petroleum-producing company in Canada, Teck Resources, and Total E&P Canada of France have jointly invested.

This project is to build an extraction facility to produce 180,000 barrels of bitumen per day out of oil sands buried in Fort Hills located in Alberta, Western Canada, one of the largest oil sands reserves in the world. SK E&C, which has already done the Front-End Engineering Design (FEED), is the main contractor, and already started construction early last month. The plant is expected to be completed by late 2017, about 40 months from now.

In particular, the Fort Hills Project is the largest deal that Korean construction companies have won in the oil-sand-rich country of Canada, and the very first

oil plant construction to apply the bitumen extraction technologies using high temperature paraffin. SK E&C broke the conventional bitumen extraction method to use naphtha, but introduced new technologies to use high temperature paraffin in order to radically increase the marketability and purity of bitumen.

Major facilities of this construction will be manufactured in module components and transported to Canada over vessels. These models will be assembled and built by local construction companies in Canada.

Earlier, SK Engineering and Construction Co. (SK E&C) reached a tentative deal to build a natural gas liquefaction plant in the United States on Feb. 11, marking the first time for a South Korean company to enter the construction business sector in the U.S.

The memorandum of understanding (MOU) reached with Australia's Magnolia LNG calls for building a 3.4 million ton capacity liquefaction plant on the banks of Lake Charles in Louisiana. Liquefaction plants handle pre-treatment, natural gas liquid recovery, a liquefac-

tion process and storage for the liquefied natural gas (LNG).

The project for the mid-size plant is estimated to be worth US\$1.57 billion, with work to start after SK E&C and Magnolia sign a formal agreement early next year. The two partners are expected to hold talks on the verification of basic Front-End Engineering Design (FEED) and calculating the cost for the engineering, procurement, and construction (EPC) part of the project.

The project site is located in the southwestern corner of Louisiana in the Calcasieu River Shipping Channel.

"The formal deal will mark the first time that a local builder secures an EPC order for natural gas liquefaction," a company representative said in a statement. South Korean builders have generally not engaged in this kind of work because the country does not have any gas wells.

The deal could be the start of South Korean companies entering the global liquefaction plant construction market that has been controlled by a handful of companies with critical source technology, such as APCI and ConocoPhillips Co., the builder said.

SK E&C, the eighth-largest builder in the country, claimed that it has gained prior experience by engaging in a FEED project for a liquefaction plant in Australia in 2008. It said that technology developed at the time has been credited for simplifying production and reducing overall investment costs.

The company said that with some 1,300 undeveloped gas wells with commercial potential around the world, there is expected to be a rise in orders for liquefaction plants. **bk**

Healthcare Competition

Healthcare Information Technologies Performing Very Well in Overseas Markets



The healthcare IT of Korea has expanded to global markets such as the Middle East, Asia, and Africa, and is performing very well overseas. In particular, since the number of the cases in which professional medical IT companies and big corporations centered on medical institutions are jointly entering foreign markets is increasing, this package type expansion is expected to gain momentum.

The consortium of Seoul National University Bundang Hospital and SK Telecom formed a contract to export Best Care 2.0, the next-generation hospital information system, with the Ministry of the National Guard of Saudi Arabia, in June, and started to build the system in August. This is the very first case in which a medical institution and a big telecommunication company have jointly entered the overseas medical IT market.

Best Care 2.0 is the next generation hospital information system created by ezCaretech last year. This system was built in Seoul National University Bundang Hospital and is being successfully operated. The consortium plans to construct the system in one hospital this year and in five more hospitals next year. In addition, they plan to establish a joint venture with the government of Saudi Arabia and export the hospital information system to other Middle Eastern countries.

Inje University Paik Hospital built a medical information system at Base Hospital Avissawella in Sri Lanka early this year, and successfully stabilized the system. The system served 42,000 patients during the first half of the year.

All the procedures in the hospital have been computerized, which means there is no need for handwritten records any longer. Furthermore, hospital visit information is available in the system, which was impossible before the program was implemented, so that accurate prescriptions based on patient medical records is possible.

Telemedicine systems, which are not doing well in Korea, are welcomed in overseas markets. Soon Chun Hyang University, together with a medical IT company BIT Computer, will construct an international online collaborative treatment system in three local hospitals in Cambodia, including Preah Kos-samak Hospital. Through this system, Soon Chun Hyang University will provide remote collaborative treatments and chronic disease management systems to those hospitals. This is the case in which the u-health system of Korea was imported to one of the countries receiving the official development assistance (ODA).

Since the competition to predominate the global healthcare IT market is getting fiercer, however, many professional companies are struggling.

UBcare, a strong player in the clinic-level electronic medical record (EMR) market, liquidated its branches in Malaysia and Thailand that it established in 2008 and 2012, respectively. The company planned to penetrate into the medical information market in Southeast Asia based on these two branches, but decided to close them in the end after a series of losses. Platinum MD, the US branch established through the acquisition of a local EMR company in 2012,

recorded 1.2 billion won (US\$1.18 million) of sales revenue and 600 million won (US\$589,134) of operating losses during the first half. Infiniti Healthcare, a company specialized in picture archiving and communication systems (PACS) with nine overseas branches in major advanced countries and emerging markets, scored net losses in all overseas branches except the U.S., China, and Southeast Asia.

As the Obama administration has mandated EMR starting from 2015, many companies including UBCare, BIT Computer, and Business On entered into the US market with a lot of expectations. However, there were no significant outcomes due to intense competitions. An industry professional said, "There were less than 50 companies specialized in EMR in the U.S. when we first entered the market. But as all the companies around the globe crowded into the U.S., the number of companies increased to 500 in two years."

Competition is also very fierce in Middle Eastern countries. As the government of Korea and Saudi Arabia formed an agreement last year, many private contracts were expected from the national medical information system business in Saudi Arabia. Yet, since many global IT companies joined the competition, international bidding, divided by projects, took place. Currently, Korean companies as well as many multinational companies including GE, Cerner, and Epic are studying one another carefully to win the bidding over the medical information system construction business for national hospitals of Saudi Arabia. **BR**

Fueling Cars with Water

Korean Research Team Develops Tech to Mass Produce Hydrogen



The technology to mass produce hydrogen out of water using sunlight has been developed, which means that a breakthrough to secure hydrogen, a next-gen source of energy, has been discovered. If this technology is commercialized, the era of fueling automobiles with water could begin.

According to the Ministry of Science, ICT and Future Planning on Sept. 15, a research team consisting of Professor Lee Jong-hyup at Seoul National University succeeded in developing the technology to mass produce hydrogen, a next-gen source of energy, out of water using sunlight.

Research so far has concentrated on producing hydrogen using ultraviolet rays, which are only 4 percent of sunlight, but carry a lot of energy. However, such studies reached a fundamental limit in producing hydrogen due to the extremely small amount of ultraviolet rays available from the sun. The conclusion reached was that it would be necessary to use the entire spectrum of visible light emitted by the sun to produce hydrogen from water in any meaningful quantity.

Therefore the performance of Professor Lee's research team is drawing a lot of attention, as this team used visible light to produce 74 times more hydrogen out of water than the conventional method.

According to the research team, gold nanoparticles are capable of producing hydrogen from water by absorbing visible rays at a low energy level and creating thermoelectrons. However, the production efficiency and practicality of this process is extremely low, as most thermoelectrons break down very quickly, only lasting 1/10 quadrillionth of a second.

However, the research team was able to radically enhance the lifespan of electrons created from gold nanoparticle catalysts by developing ternary system nanostructures in which two more nanoparticles are attached to the gold particle. Through this method, 74 times more hydrogen was produced than when gold nanoparticles were used as a catalyst alone.

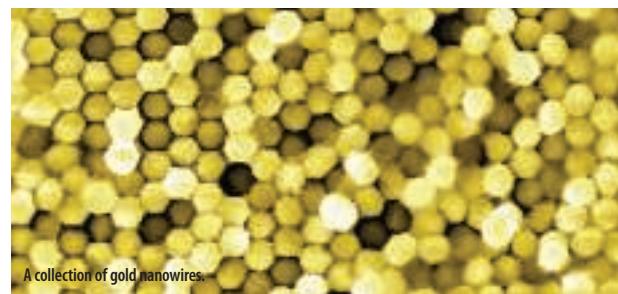
This newly-developed nanostructure will also be highly practical in the solar energy conversion field, since electric

energy can be produced by the structure as well in an environmentally-friendly way.

Professor Lee projected, "The results of this research will greatly contribute to the improvement of clean energy-based industries by changing the traditional energy production system. When this technology is commercialized and the energy storing technology is more advanced together afterwards, home appliances and even automobiles can be operated with only water, without any infusion of electricity or fuel from outside." BK

Highly Sensitive Nanoprobe

Korean Research Team Develops Thinnest Probe Made of Gold



The Korea Advanced Institute of Science and Technology (KAIST) announced on August 27 that a research team led by Kim Bong-soo, professor of the Department of Chemistry at KAIST, has successfully developed a method to measure the nerve signals of mice with an extremely thin nanoprobe made from gold nanowires.

At 100 nanometers thick, the sensitivity of this nanoprobe is 1,000 times as high as existing ones, and the device can measure the signals of cranial nerves at an interval of less than 1mm. Existing probes detecting nerve signals damage tissues a lot when inserted, and thus detection signals are weak. On the other hand, the newly-developed probe can detect nerve signals much better by minimizing damage.

The device is the most important element in brain research. Probes that detect nerve signals should minimize tissue damage, and also have excellent electrical sensitivity.

The research team heated gold to its vaporization point and then allowed it to condense on a substrate with a lower temperature. Using a few techniques, a single-crystal gold nanowire was created. The nanowire has high electrical conductivity while also being quite strong and flexible as a perfect single crystal.

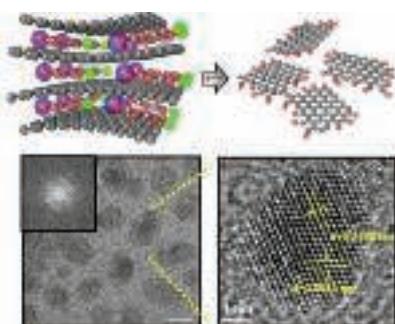
The team administered a drug that triggers epilepsy in mice, and inserted the nanoprobe into the brains of the mice. After measuring the nerve signals of the mice, the specific area in the brain that causes epilepsy was found. On top of that, it

was possible to detect a change in nerve signals resulting from the intrusion of another mouse.

Professor Kim said, "The newly-developed probe can detect, with high sensitivity, signals from a single nerve cell without damaging the nerve cells of the brain." He added, "I think that it will be useful in making a 3D map of cranial nerves, and it is likely to be helpful in treating dementia and Parkinson's disease as well." BK

Quantum Dots

Paving Way for Paper-thin Displays



The synthesis process for graphene quantum dots.

A Korean research team has successfully developed high-quality graphene quantum dots that are equal in size and highly efficient in emitting light. This technology is expected to be used in developing paper-thin displays or displaying information in flexible materials.

The Korea Advanced Institute of Science and Technology (KAIST) announced on August 28 that a research team led by Jun Suk-woo, professor of the department of materials science and engineering at KAIST, has succeeded in making graphene quantum dots by mixing water and salt into graphite and then synthesizing a chemical compound between layers of graphite, in collaboration with professors Jo Young-hoon and Ryu Seung-hyup.

Quantum dots are nanometer-sized round semiconductor nanoparticles that are very efficient at emitting photons very quickly. They are receiving a lot of attention as a possible next-gen technology in quantum information and communications because of these properties.

The diameter of the equally-sized graphene quantum dots was 5 nanometers. Unlike existing quantum dots, new ones are eco-friendly, since they do not require toxic materials like lead and cadmium. Moreover, it is possible to mass-produce newly-developed quantum dots at little cost, because they are made of easily-obtainable materials such as graphite, water, and salt.

In the past, it was difficult to commercialize graphene quantum dots, in that it was not easy to synthesize a large number of equal size. Another factor was low efficiency from the

way the particles were put together.

The team developed and confirmed the possibility of the commercialization of graphene quantum dot LEDs with more than 1000cd/m² brightness using graphene quantum dots, which are brighter than displays for cell phones.

Professor Jun remarked, "The new quantum dots are not as efficient as existing LEDs in emitting lights. However, the characteristics of emitting lights can be improved further." He added, "I hope that it will be possible to make paper-thin displays and exhibit information in soft materials like curtains using this method."

The research findings were first published online on August 20 by Advanced Optical Materials, a scientific journal published by Wiley-VCH. BK

Woven Solar Cells

New Type of Solar Cell Developed for Wearable Devices



Flexible precision fabric which, in cooperation with the Swiss company Sefar AG, was developed into an electrode for thin-film solar cells. (Photo via Softpedia)

The Korea Electrotechnology Research Institute announced on August 21 that Dr. Cha Seung-il and Dr. Lee Dong-yoon at the Nano Convergence Technology Research Center have developed a woven-type dye-sensitive solar cell.

The electrode structure of the solar cell is formed through a weaving process by using metallic and ceramic fibers. Then, dye is printed with the photo electrode in a screen printing process. The solar cell, having a cloth-like structure, is soft and flexible, and can be cut and formed into the desired shape. A lot of advanced countries are working on woven solar cells, but have failed to achieve similarity to the woven material, due to the textile tension and frictional force generated in the weaving process.

Battery efficiency is around 5 percent, a commercially viable level. The organization is going to transfer the technique through follow-up research.

The solar cell has a wide range of applications. For example, it can be inserted into or attached to a wearable device as a power source, and can also be employed for use in camping gear, curtains, residential buildings, and combat gear.

The research is available in the Scientific Reports journal of the Nature group. BK

GTI Expo 2014

Festival of Northeast Asia to be Held in Gangwon Province



Jeong Hong-jin, head of the Gangwon Provincial Government GTI Expo Steering Committee.

GTI International Trade & Investment Expo 2014 takes place from Oct. 23 to 26 in Gangneung City, Gangwon Province. The four members of the Greater Tumen Initiative (GTI) – South Korea, China, Russia and Mongolia – will participate in the expo with approximately 500 companies and 3,000 buyers from 10 or so other countries including Japan, India, and Canada.

Established in 1992, the GTI is an inter-government council for regional development in Northeast Asia, and its scope of business was expanded to cover the East Sea region of Korea in 2006. Gangwon Province suggested the opening of the expo so as to promote cooperation among the local governments of the member countries, and hosted the first GTI expo in Gangneung last year. Also, President Park Geun-hye agreed to turn the GTI into an economic cooperation mechanism for the development of Northeast Asia with Chinese President Xi Jinping, who visited Seoul in July 2014.

This year's GTI expo is held under the slogan of Economic Hallyu to Northeast Asia with Gangwon Provincial Specialty Products. The exhibits will include medical devices, biotechnology, clean food, eco-friendly manufactured goods and many more. At the same time, the Gangwon Province PR Center will be run during the period to promote the Pyeongchang Winter Olympics, Donghae Free Trade Zone, and the tourism industry

of the province.

Art troupes from Jilin Province, China and Dottori Prefecture, Japan will perform at the opening ceremony before the Korea-China IR Session, GTI International Cooperation Forum and trade and investment meetings. The international cooperation forum on the second day is drawing particular attention as the joint development project of Rajin, Hunchun, and Khasan is about to yield visible results. Well-organized cooperation among the regions and the East Sea area will be the main topic of the conference so that it can be adopted as a high-priority national policy goal of Korea.

Also, a variety of hands-on events are prepared for the general public as well as international buyers. Examples include specialty goods bargain sales, tasting events, and gift distribution. "We have prepared various programs such as photo exhibitions, cooking competitions, art performances and youth art exhibitions with our sister cities Jilin Province, Dottori Prefecture, and Alberta, Canada," said Jeong Hong-jin, head of the Gangwon Provincial Government GTI Expo Steering Committee. He added, "Additional programs for the experience of the culture of Gangwon will be provided along with business meetings."

The number of foreign figures visiting the expo is expected to exceed that of any other international expo hosted in Korea. Specifically, the guests include Maruhan Group Chairman Han Chang-woo, who is also the chairman of the expo organizing committee; more than 100 executive members of the World Federation of Korea Association of Commerce; 40 or so CEOs of the members of the Chinese Enterprise Association; the Fed-



Hall of Cooperation : medical equipment, health care, biotechnology, ceramics, Winter Olympics

Hall of Development : artifacts, tourism, beauty care, Gangwon Tourism

Hall of Win-win Growth : marine biotechnology, Free Economic Zone Authority, Changchun-Jilin-Tumen

Hall of Prosperity : clean food, manufactured goods, Foreign Enterprise

eration of Korean Residents in Japan; 200 corporate executives from Jilin, Hunan, Heilongjiang and Shandong; 100 Chinese entrepreneurs doing business in Korea; those from the Maritime Provinces of Russia; and many more. The host city is going to invite 100 domestic buyers as well so as to maximize the economic opportunities of the expo and help small firms' businesses in the domestic market.

Tailored consulting for overseas market penetration and investment attraction is also available for the buyers, the CEOs and the participating companies. The Korea-China IR Session, which is scheduled for Oct. 23, is expected to be attended by 300 entrepreneurs from both countries.

"I hope that the GTI Expo will develop itself into one of the expos representing Asia, so that Gangwon Province becomes the center of transportation, logistics, trade, and tourism of the region based on economic cooperation exchanges between Northeast Asian countries," the steering committee head Jeong

said. He continued, "In this context, we will focus the development of the expo on wellness, healthcare, tourism, biotech, medical equipment, and clean primary industry goods unique to the province, which will be of great help for those companies located in Gangwon to make inroads into the global market." *BK*

Time Table

Date	Event	Time	Place
10/22 (Wed)	Arrival of delegations and buyers (Gimpo and Incheon Airports to Gangneung)		
	Bilateral	15:00	Lakai Banquet Hall
	Reception dinner	18:00	Lakai Grand Banquet Hall
10/23 (Thu)	Opening ceremony	10:30	Main Stage
	Luncheon	12:00	Lakai Conference Hall
	Korea-China IR Session	13:00	Lakai Grand Banquet Hall
10/24 (Fri)	Commemoration event for 20-year exchange (4-country cooking competition)	14:00	Expo Stage
	World Korean Business Convention	17:00	Lakai Mid Banquet Hall
	MOU and contract signing	10:30	Contract signing venue
10/25 (Sat)	Winter Olympics event	11:00	Stage and Olympic Hall
	Meeting with Ministry of Strategy & Finance	12:00	Downtown restaurants
	GTI International Cooperation Forum	14:00	Lakai Ball Room Conference Hall
Visit to provincial enterprises	10:00	Expo venue	

